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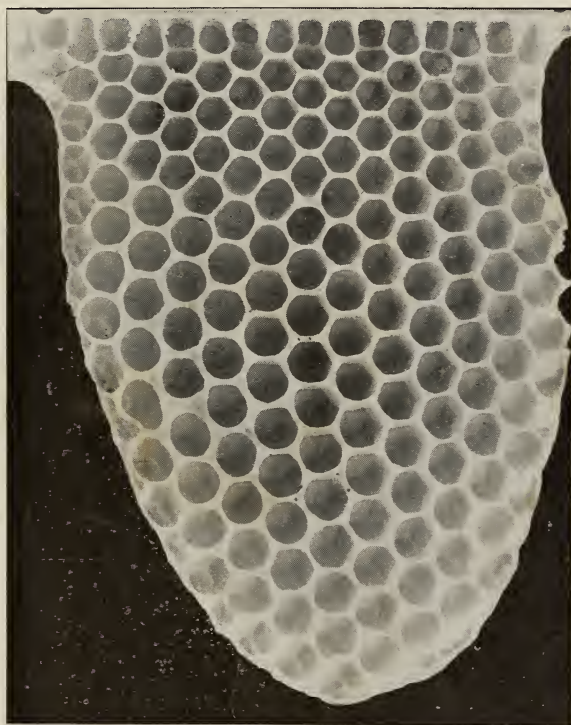
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GLEANINGS IN BEE CULTURE

Vol. XXXV

August 1, 1907

No. 15



“The Story of Honey-comb”

By E. F. Bigelow

The A. I. Root Company, Medina, Ohio, U. S. A.

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Revue mensuelle illustrée,

est tirée de:

Gleanings in Bee Culture

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Vol. XXXV.

AUGUST 1, 1907.

No. 15.



MINUTE DETAILS are given by Dr. Bruennich, *Schweiz. Bztg.*, 221, of a case in which there seems no possibility of mistake wherein larvæ were removed from Doolittle cups and put in cells of the bees' own construction.

REFERRING to large entrances, page 970, I may say that my entrances are two inches deep, and there is no trouble about the front row of sections being well finished. And I don't have any winter case over the super either.

DR. BRUENNICH says (*Bienen Vater*, 12) it is better to breed from colonies which supersede queens in their third year, while still young and vigorous, than from colonies whose queens continue a year longer, but doing poor work in the last year.

MR. EDITOR, please tell us how Mr. Alexander gets two or more queens to work together in the same brood-chamber. [Mr. Alexander promised to write this matter up fully after he had had one more season to test it. We may reasonably hope that by fall he will tell us more of his findings.—Ed.]

POSSIBLY the common expression, when two queens, mother and daughter, are found together, that they are *laying* side by side, is not true as often as we think. Devauchelle (*Apiculteur*, 144), reports a case in which were only eggs and a few hatching drones, showing that the old queen had ceased laying 21 to 24 days previously.

E. W. ALEXANDER has made a good job in showing up the advantages extracted honey has over comb honey. Surely he is wise to extract if he can get three times as much extracted as comb. How many can say the

same? Might it not be added that a sufficient reason for his preferring extracted is his great buckwheat yield?

PROF. COOK, p. 955, referring to autumn foliage, says hard maple is a close rival to soft maple. Here it is just the other way, only the rivalry is not close. Hard maple is transcendently beautiful, soft maple falling very far behind it. [In our locality the soft maples are much more beautiful, and earlier to furnish pollen.—Ed.]

AS POSTSCRIPT to what Prof. Cook says, p. 954, it might be added that views in Germany vary as to the value of phacelia. Some praise it as fodder for stock and for nectar, and some condemn it. A patch that I tried did not show any value for either purpose. As it is a native of California, Californians ought to tell us of its value there, and I have made several calls for such information, but without response. Prof. Cook, what is the value of the plant with you?

THE NULLIFICATION of the Illinois cigarette law, as mentioned by you, Bro. A. I., p. 947, while regrettable is only partial, and I'm not sure but the best part is left intact. It is still a crime for any one in Illinois under 18 years of age to smoke in public, and boys who are not allowed to "show off" in public before that time will in very many cases have sense enough at 18 to let tobacco alone. Besides, the great probability is that the next legislature will enact the law without any such flaw in the title.

DESIRE HULLON (*Apiculteur*, 134) reports an interesting series of experiments to determine the weight of nectar. Some just deposited in cells at 11 A.M. weighed 1310 grams to the liter. A sample taken 90 minutes later was precisely the same density. At 5 A.M. next morning a liter weighed 1353 grams. Have we not generally been taught that evaporation went on more rapidly? Of course, it is not always the same. [These figures seem a little strange in view of the fact that the bees, after gathering in a good supply of nectar, are busy all night, supposedly evaporating it down. It would seem

that this might be an isolated case, occurring when the general atmosphere within and without the hive was saturated with moisture.—Ed.]

AN AMERICAN bee-keeper, having an apiary of choice colonies, the fruit of long and patient selection, introduced Italian bees into his apiary. In a few years the greater part of his colonies were poor; the revenue of his bees was diminished; he was obliged to eliminate all that was worthless and begin all over again. That's the story in *Le Rucher Belge*. Now who can give us the name of the American bee-keeper who thus suffered from introducing Italians? [This does not seem to dovetail with the facts. The editor of *Le Rucher Belge* must have been reading the bee-journals carelessly or else he would not have singled out an isolated case that does not anywhere near represent the facts.—Ed.]

WASHING HONEY off the fingers with earth is disapproved by D. M. M., *British Bee Journal*, 232; and in the next breath he says, "When folding sections, handling foundation, wiring frames, and especially when dealing with surplus honey, the fingers must be kept rigidly clean." Friend D. M. M., I plead guilty to using mother Earth as a cleanser, and I don't see any harm it does while opening hives and handling frames; but I don't do any of the things you name while in the apiary; and when I leave the apiary I wash my hands. You say, "Nothing beats cold water." Yes, cold is very good, and warm water not so bad; but it takes more time to tramp off for the water-dish than to grab up a handful of soil without leaving the hive. I give you my solemn promise, though, that I'll not handle sections, foundation, etc., without first washing off the soil.

ACCIDENT, perhaps, as often as design, leads to some new plan in bee-keeping. Some years ago I piled over a colony four stories of empty combs to be taken care of. To make sure that the bees would traverse the whole lot I put one or two brood in the top story. Some three weeks later I was surprised to find bees flying through a crack under the cover; and upon examination I found a laying queen in the upper story. There was no excluder in the pile; but the bees, feeling isolated by distance, reared a queen of their own, and the accident of a hole under the cover allowed the young queen opportunity for fertilization. I published the case, I think in *GLEANINGS*, and, if I mistake not, that was the beginning of all this rearing of queen-cells over colonies with laying queens. [We can not be sure, but we are of the opinion that the feasibility of rearing a queen in an upper story was demonstrated long before the instance to which you refer. Perhaps some correspondent can help us out.—Ed.]

SUPPOSE two queens are introduced at the same time, either in two cages or in the same cage, will not the bees accept both? [You could not ordinarily release two queens at

the same time; for when they got together there would be a fight between them, with the probable result that the bees would ball one or both. But if two queens were caged at the same time, each in a different cage, after the proper time had elapsed it would make no difference to the bees which queen they had, providing one was not more timid than the other. A timid queen, especially if she squeals in fright, is always more liable to attack than one which acts when first released as if she had always been in a hive. We are practicing the dual plan of introducing every day. We let out one; and after she begins to lay she is caged and sold. Almost immediately the second one is released and accepted. By the time she begins to lay, another is ready to be released, and so the process continues. This is being enacted as a regular thing at our north yard, and any visitor who may come will be shown the whole performance.—Ed.]

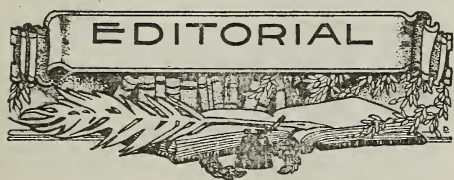
E. S. ROE, in reply to a question on page 754, says he has often seen eggs in drone-cells as shallow as or shallower than worker cells. That knocks away a prop in support of the compression theory. But it by no means settles the case in favor of the queen-will theory. Who knows that some peculiarity of position of the queen standing over drone-cells, even if still shallow, may not make the difference in fertilization? Mind you, I don't say which theory is correct; I don't know; but I must say that the preponderance of argument does not yet appear in favor of the queen deciding the sex of eggs by the mere act of her will. Let me now ask another question. Does any one know of a queen-laying worker-eggs in normal drone-cells? Years ago I thought I'd force a queen to do so. I took from a colony its combs and gave it all drone-comb. The bees swarmed out rather than to live in such a place. It is well known that a young queen in a weak after-swarm, if she has any will at all in the matter, has a will for worker-eggs only. Give her drone-comb in the center of the brood-nest; and if the sex of eggs depends on her will, why does she not lay worker-eggs in the drone-cells? "You've known them to do so?" I beg your pardon, are you sure they were normal drone-cells? I've known workers to be reared in drone-cells, but not normal drone-cells. The workers had changed them by putting on a rim of wax, thus narrowing the mouth of each cell before the queen laid in them. Why could she not will to lay worker-eggs in them before the bees changed them? [We have received numerous other statements, all certifying to the facts set forth in the letter published on page 754; but the evidence set forth by these others is even more conclusive. In some cases the drone-cells have been shaved down to within $\frac{1}{8}$ inch deep. The queen laid therein, and the eggs produced fully developed drones. So much evidence has come in to this effect that we are unable to give space to it all, and we are, therefore, of the opinion that we may conclude that the diameter of the cell and the depth of it have nothing to do toward making the egg male

or female. In this connection it is interesting to note that Swarthmore has succeeded in getting a queen to lay in artificial queen-cell cups. It will be remembered that these cups are about the same shape and proportion as an ordinary teacup, only miniature in size. But, small as they are, the diameter is a great deal larger than that of the ordinary drone-cell. The eggs that the queen lays in these cups will develop females or young queens.

Yes, there are instances on record of queens laying worker-eggs in normal drone-cells; but they are so rare that we may practically say the queen never does so. In this connection see the article by Ralph Benton, on page 1025 of this issue.

Do we understand you to mean that the general consensus of opinion does not favor the view that the queen can at will, and with full knowledge of what she is doing, lay drone or worker eggs? Our best bee-keepers have not generally favored the idea that external circumstances govern the sex of the egg, or, to be more exact, that the size or depth of the cell has any thing to do with it.—Ed.]

EDITORIAL



THE DEATH OF L. STACHELHAUSEN.

THE following note was received just as we were closing up the last forms:

Dear Gentlemen:—Sorrowfully I have to let you know that my dear husband, Mr. L. Stachelhausen, died on the 7th of July, after a severe suffering of eleven months. Hoping that the bee-keepers will keep him in kind remembrance, I am respectfully

Cibola, Texas. MRS. L. STACHELHAUSEN.

Mr. Stachelhausen was a German bee-keeper of international reputation, and the bee-world on both sides of the Atlantic is losing a valuable man. More particulars will be given later.

FOUL-BROOD INSPECTION FOR MISSOURI.

Mr. M. E. DARBY, of 408 East Commercial Street, Springfield, Mo., has been appointed by the State Board of Agriculture inspector of apiaries for that State under the new foul-brood law passed at the last session of the legislature.

It is now the bounden duty of all who have the interests of bee-keeping at heart in old Missouri to assist in every possible way to stamp out the disease we call foul brood.

The chief work of a foul-brood inspector is to prevent the spread of the disease; and unless bee-keepers keep him informed, Mr. Darby can not do this. If he secures loyal support the trouble can very probably be stamped out or its ravages greatly mitigated.

THE LEBANON COUNTY BEE-KEEPERS' CONVENTION.

THERE is one place in the United States where the bee-keepers are undeterred and unafraid, and that is in Lebanon Co., Pa. On June 29 they held their annual meeting at the Snyder apiaries, near Lebanon, in the face of a northeast storm. The apiary selected is fully up to date, containing 100 colonies of Banat, Caucasian, and Italian bees in first-class hives, all nicely arranged. The inclement weather caused the speeches to be made in the barn of the owner, S. K. Snyder. The following prominent bee-keepers made addresses: Prof. Cyrus Boger, W. Shilling, E. L. Pratt, E. L. Brown, Dr. Henry Townsend, S. K. Snyder, Harold Horner, W. A. Selser, and H. C. Klinger. Over a hundred bee-keepers were present, and, in spite of the weather, greatly enjoyed the occasion.

THE QUESTION OF HONEY-LABELS, AGAIN.

In our last issue, p. 950, we publish a letter from Secretary Wilson, giving his ruling on the use of certain honey-labels which the General Manager of the National Bee-keepers' Association had submitted to him. In a word, it will be remembered that the Secretary said it was not necessary to label pure honey; but if a label were used it must not be misleading.

It will also be recalled that we were not entirely clear whether a bottler of honey who purchased from other bee-keepers or from other States would be permitted to use the usual words "put up by," even though the product so labeled was pure honey. Accordingly we addressed a letter to Secretary Wilson, enclosing copy of our editorial on page 950 of last issue, and asked for a ruling on the point as to whether (to take a concrete case) John Jones, of Blankton, Ohio, who does a general bottling business in pure extracted honey which he buys, but which he does not produce, would be permitted to use the wording on a label reading "Pure extracted honey put up by John Jones, Blankton, Ohio." In response to this we received a letter from Secretary Wilson under date of July 3, which is here given:

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
WASHINGTON.

Mr. E. R. Root:—I wish to acknowledge receipt of your communication of the 26th ultimo, together with an enclosure of an editorial on the subject of labeling honey. I have read this editorial with great interest.

In my opinion the labeling of extracted honey should be based upon the following considerations:

There are two classes of extracted honey with which the law has to deal so far as labeling is concerned: 1. That which is sold in interstate commerce by the person who extracted the honey; 2. Extracted honey sold by persons other than the one who does the actual extracting. In the first case, the person who does the actual extracting may, if he desires, label such extracted honey "John Jones' Honey," as in the case of any other product labeled by the actual producer. In other words, if John Jones had actually extracted the honey in question he could put it up under his name without his name being qualified in any way. In the second case, if John Jones shipped into interstate commerce extracted honey from other sources than his own labor, he would not be looked upon as the actual manufacturer, in which case, in accordance with Food Inspection Decision 68, John

Jones would be obliged to modify his name by such a phrase as "Distributed by." The phrase "put up by" does not seem to be particularly happy, because it could be with like truth applied to the person who bottles his own product as well as to the person bottling extracted honey from other sources.

It is the intention of the law that labels on all food products should not be misleading in any particular, and it seems to me that if extracted honey is labeled under the conditions as outlined above, there can be no question as to the names given on such labels being misleading.

Respectfully,
JAMES WILSON, Secretary.

Circular No. 68, to which reference is made, does not say any thing about "put up by;" but it does say that a person, firm, or corporation using goods manufactured or produced by some one else may use the words "prepared for," "manufactured for," "distributed by;" but the phrase "sold by" is "not satisfactory." As honey is not "manufactured," bee-keepers do not care any thing about "prepared for," "manufactured for," and the only phrase that would apply to the bottler who buys pure honey of other producers would be the words "distributed by," and this must not be set in types smaller than eight point (or brier) caps.

The editor happened to be in Washington early in July, and while there called upon Dr. Bigelow, who is acting in charge during the absence of Dr. H. W. Wiley, Chief Chemist of the U. S. Department of Agriculture. Dr. Bigelow, one member of the committee, stated it was his opinion that the words "put up by" could not be accepted by the committee, in view of the fact that the general public would not draw a distinction between "produced by" and "put up by." When the latter phrase was used the consumer might infer that the honey "put up by" John Jones actually came from John Jones' bee-yard, and was, therefore, of his production. To that extent he believed that the words "put up by" would be misleading, and therefore contrary to the general provisions of the law. This is in accordance with the letter by Secretary Wilson, as will be noted in the next to the last paragraph; but we stated that the words "distributed by," which would be acceptable to the committee, would, on the other hand, give a wrong impression to the general public. For example, John Jones had built up a business upon a fine quality of honey that he actually produced, and that, when the supply from his own yards gave out, he would actually be compelled to go out into the open market and buy a product that would be equal in purity, quality, and flavor to that which he had been producing in his own yards. If he were compelled to use the words "distributed by" the public might assume that he went out into the open market and bought honey upon which he placed no guarantee of quality, even if it were assumed that it was pure. We suggested that perhaps the words "bottled by" might be acceptable, and asked for his opinion upon it. He freely said he did not think there would be any objection to that wording, provided no other statement was made implying that the bottler was also a producer of the contents of the package.

We referred this question to a number of

extensive bottlers of honey. Some of them have had the impression that they would be permitted to use the words "put up by," but in our opinion this would be an unsafe wording in view of the ruling of Secretary Wilson; for you will note that he says the phrase "put up by" "does not seem to be particularly happy, because it could be with like truth applied to the person who bottles his own product as well as the person bottling extracted honey from other sources."

It should be clearly understood that the national law applies only to *interstate* and *territorial* business. If the small bottler disposes of his product within the borders of his own State he is subject only to the laws of that State; but he must clearly bear this in mind, that, if any of his honey should by a second or third party be shipped without the borders of the State, and the labels should not be in conformity with the national law, he would be rendering himself liable; and it is, therefore, important that both the small bottler as well as the large one who does and expects to do an interstate business, have his labels so worded that there shall be no question upon the point.

Two or three bottlers have submitted to us the labels reading as follows: "John Jones' honey, Blanktown, Ohio." The Department has already ruled that such wording is contrary to the provisions of the law, because it is clearly implied, although it is not exactly so stated, that a honey bearing that label was produced by bees owned by John Jones.

Another bottler submitted to us a label reading as follows: "Pure extracted honey sold by John Jones." But food-inspection decision No. 68 clearly bars out the words "sold by" on a product manufactured or produced by some one else.

It is possible that the Department may yet accept the words "put up by," with the understanding that it means only packed by or bottled by. We have been informed that Dr. Wiley, in some conversation that he had with a prominent bottler of honey, stated that, in his opinion, "put up by" would be permissible; but apparently that opinion does not seem to be shared by two other members of the committee, Wilson and Bigelow.

In view of the fact that *any time* upon complaint (of a competitor, we will say) a prosecution may be entered against a bottler using a label that was even slightly misleading it would be wise to err on the *safe* side and adopt such wording as is recognized in the pure-food decisions already issued, or over the signature of the Department officials. While there is no published opinion authorizing the use of "bottled by," it would seem to be clear that, in view of the fact that such language can not possibly be misleading, there could be no objection to and no liability by the use of such wording.

In this connection it would be well to state that the Department officials refuse to pass upon any particular label used by any individual or firm. It will, however, give an opinion for an association of or a general

class of people. Mr. E. W. Pierce submitted one or two of his labels to Dr. H. W. Wiley, and received back the following letter that will explain itself:

DEPARTMENT OF AGRICULTURE,
BUREAU OF CHEMISTRY,
WASHINGTON, D. C.

Mr. E. W. Pierce:—Replying to your letter of January 27, I regret to have to inform you that we are not authorized to criticize or approve labels submitted in connection with the enforcement of the Food and Drugs Act. Our attitude in this matter is explained in Food Inspection Decision No. 41, a copy of which is enclosed. It is my personal opinion, however, that, so long as the names adopted by you as distinctive names do not deceive the purchaser regarding the character or source of the product which he purchases, they will be in compliance with the law.

Respectfully,

Feb. 2. H. W. WILEY, Chief.

In a recent statement sent out by the Bureau of Chemistry (F. I. D. 41) this statement was made: "The Department will not give its approval of any label. Any printed matter upon the label implying this Department has approved it will be without warrant."

Later:—Since the foregoing was written the following letter to Walter S. Pouder will explain itself:

DEPARTMENT OF AGRICULTURE,
BOARD OF FOOD AND DRUG INSPECTION,
WASHINGTON, D. C.

Mr. Walter S. Pouder:—In reply to your letter of the 13th inst., I regret to state that it is not within the province of this Bureau to criticize or approve labels which are submitted to it in the enforcement of the Food and Drugs Act. Our attitude in this matter is definitely stated in Food Inspection Decision 41, a copy of which is enclosed. As a matter of personal opinion, I see no objection to the phrase "put up by" as it appears upon your label, provided the goods are actually bottled by you. I have no criticism to offer on the butter labels.

Respectfully,
FREDERICK L. DUNLAP,
Acting Chairman.

July 17.

We would say that Mr. Pouder has over a hundred thousand of his honey labels, bearing the words "Pure Honey, put up by Walter S. Pouder." One of these he referred to the Board of Food Inspection, Washington, D. C., and the foregoing letter is the response.

The fact is, there are many honey-bottlers who have hundreds of thousands of labels printed with the words "put up by," meaning pure honey purchased and bottled by the undersigned on the label. Dr. Wiley and Dr. Dunlap have both expressed themselves as personally seeing no objection to the words "put up by," meaning bottled by. But, unfortunately, there is as yet no official sanction of the wording.

We are referring this to the Board of Food and Drug Inspection, and asking, on behalf of thousands of bee-keepers who can sell more than they can produce that a definite ruling on the point be made. As it is, bee-keepers are uncertain what their rights are in the matter.

We might explain that the words "put up by" have always meant that the honey under such label was not taken by the person whose name is on the label from his bees, but was a pure honey which he has bought of persons of known probity and honor, and a honey which he knows from his own expert knowledge of honey to be pure, of good quality and flavor.

WEATHER CONDITIONS AND HONEY-FLOW; A SEASON OF SURPRISES.

SINCE our last issue there has been a sudden change for the better. An abnormally late flow of honey from clover started up in many of our Northern States, beginning as late as the 18th. Basswood is starting to yield well, and the promise of a flow from that source is fairly good. In some cases, at least, clover came, went out of bloom, and then, strange enough, bloomed again and began to yield nectar. In recent trips over the Northern States we find there was never more white clover, and alsike is unusually abundant. The fine honey weather, hot days and nights, with frequent rains, is beginning to bring the nectar into the blossoms. California and the West are showing up a little better. In fact, there is no knowing what this season's disappointments and surprises may bring forth. At best the crop will be light, and prices, to say the least, should be firm. Indeed, they should rule high in view of the new pure-food laws, both State and national.

We sent requests to a few leading bee-men, honey-buyers, and supply agents for reports on the honey season, the same to reach us on the 20th. Two of them from the far West are telegrams. We give the responses just as they have come in, below. While they do not show anything very great, they show a change.

CALIFORNIA.

Crop complete; eighty cars; quality extra good; mostly sold, highest prices. H. J. MERCER.

Los Angeles, Cal., S. W., July 20.

The Riverside Press says: "Reports from bee-men through this section indicate that the honey crop this season will be in excess of that of last year, but not nearly as large as it should be for a normal season. One great reason for this is the cool spring which has kept many of the flowering shrubs from blooming at the usual time. Bees as a rule are in excellent condition, however, and the bee-men generally are quite encouraged with the outlook for the rest of the season."

The Fowler *Ensign*, Fresno Co., says, "County Bee-inspector J. J. Bowen filed his regular monthly report with the supervisors. The bees throughout the county are reported as being in a highly unsatisfactory condition, and the outlook for the season is not promising. As a result of this poor condition of the apiaries, home-grown honey will probably reach the top-notch figure this year. In the Coast Range Mountains the bees are working up to the average."

COLORADO.

Colorado's crop to date averages about 8 lbs. per hive. If conditions are favorable a fair yield may be secured. Regarding prices on carload lots I would say that, so far as I can size up the situation at present, I think \$3.25 F. O. B. Colorado commodities would not be too much, and we expect to hold up to that price if we have any thing to ship out from here.

July 20. F. RAUCHFUSS, Mgr. Col. Honey-producers' Ass'n.

GEORGIA.

I have taken no honey as yet, nor have I heard of anybody who has. Bees are now gathering some honey.

La Fayette, Ga., N. W., July 18. J. A. CLEMENT.

ILLINOIS.

Season abnormally late, and there is no telling yet what the outcome will be. Clover is now yielding; began June 28. May make an average crop if it keeps late enough, but may stop short any time. No basswood to amount to anything here. Haven't the first super finished yet. C. C. MILLER.

Marengo, Ill., N., July 19, 1907.

Bees will not be able to get any surplus here — too much rain. I think they will make enough to winter.

Elvaston, Ill., N. W., July 20.

C. S. CALDWELL.

I was at our yard yesterday for a little while, and I found the bees doing very nicely. Honey seems to be coming in rapidly. R. Russell, of Glencoe, reports that several of his colonies have nearly completed the two supers of comb honey. C. E. Woolgerth, of Monee, reports about the same. We have received several similar reports. Owing to the lateness of the season, of course it will be useless to expect a large crop; yet the prospects seem to be quite favorable.

THE A. I. ROOT CO., per R. Boyden, Mgr.

Chicago, Ill., N. W., July 22.

INDIANA.

Within the past few days clover has been secreting freely; but the season is practically over, and very little surplus can be extracted from my territory. Fortunately I am getting some large shipments from Michigan and Wisconsin.

Indianapolis, Ind., C. July 19.

WALTER S. POWDER.

IOWA.

It is very wet here; bees are doing better than one could expect. It rains almost every day. We shall get some honey, but the crop will be small.

Farley, Ia., E. July 19.

J. SCOTT.

We had a cold spring. Bees failed to increase till June 10; plenty of clover and 30 acres of alsike; rain, and cold nights; no nectar in flowers. July 19 linn blossomed; no bees on the flowers; hot; rain almost every day; 1400 sections on, no extracting; two miles, plenty of linn-trees at both apiaries; no honey; barely enough to feed larvae.

JAS. CORMAC.

Des Moines, Ia., C., July 20.

You call for reports. For Central Iowa, eight yards, 100 lbs. extracted; 400 more to take; bees are still on white clover a little. I fed a ton and a half up to the time clover began.

D. E. L'HOMMEDIEU.

White clover came out promising, and the bees were doing well, but a sudden rain came that the flow stopped about a week ago. I have extracted a little, and got about 25 lbs. per colony.

A. L. DUPRAY.

Camanche, Ia., C., July 23.

MASSACHUSETTS.

Clover is yielding a little honey; fair crop from basswood. Boston, Mass., E. July 18.

H. H. JERSON.

Prospects in Eastern Massachusetts good. White clover yielded fairly.

WISSELL RICHARDSON.

West Medford, Mass., E. July 21.

MICHIGAN.

The clover season is over; one-fourth crop; in Kalkaska, Antrim, and Charlevoix Counties, raspberry season is nearly over. White clover crop, mostly on account of bees not being in good condition. Basswood in Northern Michigan will open about Aug. 1.

E. D. TOWNSEND.

Remus, Mich., C., July 20.

I report about half a crop; white clover scattering, and very little basswood; no swarming.

E. N. WOODWARD.

Hillsdale, Mich., S., July 22.

The bees are just booming. We have had plenty of rain and warm weather to keep the blossoms continuing. We expect a good crop of honey.

L. K. FLICK.

Wolverine, Mich., C., July 22.

Honey comes in very slowly this summer; prospects for a crop very poor at this time. Bees are gathering some from white clover, some from raspberry and other sources; basswood not yet open.

F. PALMER.

Paris, Mich., C., July 19.

Bees are doing finely now. Basswood is in full bloom, and honey is coming in right along. Supers are well filled in my yard, and the honey is of fine quality.

F. ALDERMAN.

Rushton, Mich., S. E., July 22.

MINNESOTA.

I have just returned from the Snelling apiary, and find the strong colonies are working finely in the supers. The Como apiary is doing still better. Reports from Mrs. Wingate and others around Minneapolis are to the effect that bees are all just booming. Probably the honey crop will be about medium in this locality.

MRS. J. C. ACKLIN.

St. Paul, Minn., S. E., July 18.

MISSOURI.

Bees have done fine work the past 16 days. I think a two-thirds crop a fair estimate.

H. PETEFISH.

Oronogo, Mo., S. W., July 20.

NEW YORK.

Bees are doing well. Clover is yielding well; weather warm and muggy; good honey weather; basswood not yet open. A bee-keeper here just now says he noticed one tree just opening, but this was in an exposed place. Mr. Horse says it will open the 20th. Our bees are doing well on clover. We think the season will be much better than last year. One party here this morning thinks he will get 100 lbs. from some colonies. A yard of six colonies has one super now nearly finished to each hive, and basswood still to be heard from. Most of the bee-keepers we see report a good yield so far.

F. A. SALISBURY.

Syracuse, N. Y., C., July 17.

The prospect for clover honey is very poor in this locality; basswood is three weeks late. It usually commences to bloom about July 4th. It will be nearly another week before it blossoms here.

E. W. ALEXANDER.

Delanson, N. Y., E., July 20.

The honey season is poor so far. I made my first extracting yesterday; bees just commencing on basswood, which is blooming freely; large acreage of buckwheat sown.

C. J. BALDRIDGE.

Kendalia, N. Y., C., July 20.

We are having a good flow of white honey.

W. H. GIFFORD.

Auburn, N. Y., C., July 19.

Weather conditions for the past two weeks have been very favorable. Immense quantities of white clover are reported now in bloom; basswood is just out. New Jersey and Long Island reports are flattering—from two to three supers on each hive.

THE A. I. ROOT CO., per L. W. Boyden, Mgr.

New York, N. Y., S. E., July 17.

Basswood opened the 15th of July. Bees are doing well on that. I think the crop will be about the same as last season.

B. HALL.

Chittenango, N. Y., C., July 20.

OHIO.

I have never seen a better flow of nectar. I shall get 50 lbs. of comb honey per colony.

J. C. ATKINSON.

Beaumont, O., S. E., July 19.

We find Cincinnati and territory almost an entire failure.

There are certain places in Kentucky getting some honey.

Cincinnati, S. W., July 17.

C. H. W. WEBER.

There will be some honey in Southern Ohio. I have received a number of encouraging reports during the past few days. With favorable weather we shall have two weeks of honey-flow yet, which will mean in some locations a very fair yield.

Some of my bees which I did not think would store a pound of surplus will, from present indications, fill a super. Others may fill two.

E. W. PEIRCE.

Zanesville, O., C., July 19.

ONTARIO.

Reports generally are from fair to excellent, with the exception of a very limited number who report dry weather. There are fewer bees than last year, but there will be much more honey than last, as last year very few sections produced any surplus white honey.

R. F. HOLTERMANN.

Brantford, Ont., S. W., July 17.

Bees are still working on clover. The flow has been good. Strong colonies are storing a strong surplus; but there are so many weak ones in the small number remaining that the honey crop will be light. Basswood promises well.

F. J. MILLER.

London, Ont., S. W., July 17.

PENNSYLVANIA.

In New Jersey, where some of our apiaries are located, it will be one of the biggest years for white-clover honey that the State has ever seen in the history of the oldest bee-keepers; but that does not mean such an awful sight, as New Jersey is not a very large honey-producing section. Pennsylvania, Delaware, and Maryland will have an average yield of white clover. Not much basswood throughout the East, but it is just beginning to open up, and may yield slightly.

Philadelphia, Pa., S. E.

WM. A. SELSER.

No surplus white honey in this section of the country.

E. A. COREY.

Basswood will not bloom this year.

Livestock, Pa., N. W., July 22.

Honey entirely a failure.

CHAS. LONGANECKER.

Sigsbee, Pa., S. W., July 20.

TEXAS.

This part of Texas has made two crops of honey this year. My first crop was taken off the latter part of April, and the second one July 8; and if we get rain in August and September we shall make the third crop, which can be taken about Oct. 1. We are having very dry hot weather now.

Oakville, Texas, S., July 18.

R. C. RUTHERFORD.

VERMONT.

Outlook for honey is poor—I should think less than half an average crop; basswood not yet open, but the outlook is poor.

Middlebury, Vt., W. C., July 17.

J. E. CRANE.

WEST VIRGINIA.

No honey in our locality as yet; season still wet; bees are in rather good condition for fall bloom.

V. H. DEAN.

Wayne, W. Va., S., July 20.

WISCONSIN.

Lots of clover; no honey in it; basswood bloom very light. I don't look for any honey.

A. A. ERICKSON.

Rockton, Wis., W., July 20.

Since July 7, bees have averaged 4 lbs. 8 ounces per day from white clover. Bright warm weather prevailed. The prospect is good for another ten days.

C. J. THIES.

Peplin, Wis., W., July 17.

One-third crop of white clover; the same of basswood; the prospect is poor; basswood just opening, two weeks late; bees are very weak.

W. J. PICKARD.

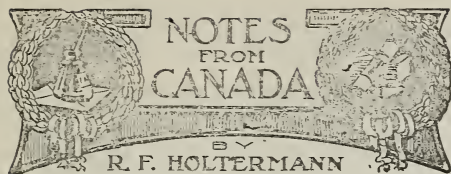
Richland Center, Wis., S. W., July 17.

Our clover crop closes to-day—half a crop, or 60 lbs. per colony, 20,000 lbs. Basswood bloom is good, but nothing in it. The clover honey I got is fine. Letters received to-day report: Santa Paula, Cal., a third to half a crop; Western Iowa, clover, two-thirds of a crop; west, Northwest Wisconsin, clover a fair crop; no basswood; Northern Illinois, half a crop; sweet clover good. All report the season late. Markets are active, and prices promise to be better than last year. I get 20 cents for comb and 10 for white extracted, retail trade.

Platteville, Wis., S. W., July 20.

N. E. FRANCE.

It is now possible to secure from the Forest Service of the United States exclusive bee-ranges in which the bee-keeper is protected from overstocking by others on all of the forest reserves now controlled by the government. So far as we can learn from the "Use Book" of the Forestry Department no charge will be made for this exclusive right. In this respect this government is more liberal than that of Victoria, Australia, which charges a cent per acre for the same service.



Page 468, Nov. 22, 1906, *British Bee Journal* states that the New Zealand government has introduced a bill, "The Apiaries Act, 1906." In addition to *foul brood* it seeks to suppress bee-moths and any other diseases or pests from time to time declared by the Governor in council. This latter is a very wise precaution, and enables immediate action to be taken when new enemies appear.

CANADIAN PROSPECTS.

At this date of writing the outlook for a Canadian crop of honey has much improved. During the last three weeks we have had warm and hot weather—much of it sultry. Strong colonies have done well; and in this section, at least, basswood-trees have an abundance of buds. Many colonies have perished; but the present outlook is decidedly favorable; however, no one can tell what the future may bring forth. There has been a great deal of swarming.

STORES FOR BEES—WHEN TO SUPPLY THEM.

W. Z. Hutchinson, *Review*, page 136, in writing, rightly draws attention first to food a colony needs for winter stores, then refers to what many in discussion and practice ignore—the food needed for rearing bees in the spring. With one apiary he rather favors spring feeding; with several apiaries, giving enough in the fall. This is generally sound practice, but it is not always safe. I favor and try to practice giving *enough for spring* use in the fall, and then spring feeding in small quantities for stimulative purposes.

MORE PROFITABLE BEES.

Canadians have been looking with interested eyes to the United States to bring forward or discover to civilization a better bee than has been known to us, and now we are told there is no result from that world-circling trip made at the expense of the United States. Bee-keepers of whatever nationality should feel grateful to the United States for this effort, and somehow or another I have a hope that this will not close the efforts of the United States or some other country to endeavor to secure a more profitable bee for the modern bee-keeper. Selection and breeding can in any case be gone on with.

QUEEN-CLIPPING.

Page 685, GLEANINGS, Dr. Miller and E. R. Root want to leave the wings on one side of the queen, as they "want one pair of wings by which we might pick her up." What a

savage condition the fathers of bee-keeping are in! I took Dr. Miller to be more gently disposed, and when at Medina I did not notice Ernest carrying the baby about by one arm. Previous education and lack of thought accounts for many of our actions. To take the queen up by the thorax and hold her in that way is a method much to be preferred. Propolize slightly the thumb and finger before beginning work; and if you scrape your hives well when the season opens and propolis is scarce, write to J. L. Byers for some of his surplus. It was Wm. McEvoy who taught me to clip the wings on both sides of the queen, and *he made no mistake.*

NECTAR SECRETION.

On page 394, Mr. Alexander, upon the subject of nectar secretion, states, "My friends, the time will come when many of you will realize that what is commonly called the 'season,' which is the condition of the ground as to proper moisture and the temperature, and the electrical condition of the atmosphere at the time the flowers are in bloom, will have a thousand times more bearing on our surplus than the amount of bloom or the number of colonies we may have in one apiary." This is worth repeating. A parallel we find in a spring well with a good head. Dip a pailful out of it, and it immediately fills up again; and so it is with the nectar in blossoms under above conditions. In my locality, however, buckwheat appears to yield the best in cloudy, hot, muggy, sultry weather, with an abundance of moisture in the ground. Mr. Alexander prefers "a clear sky and a bright hot sun with no wind."

POLLEN-CLOGGED COMBS.

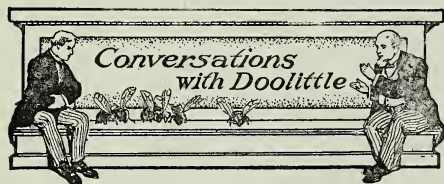
After keeping bees in a good many sections and with different ways of management, comparing this with the experience of others, I am firmly convinced that management has more to do with pollen-clogged combs than has locality. Next comes the nature of the queen. Since I have adopted the system of practically never having queenless colonies, having large brood-chambers and seeing that they are not clogged with honey, and having prolific queens, I have not had to free my combs of pollen by any artificial method. By the above I mean that, under proper conditions, the bees will use up the pollen for brood-rearing about as fast as they bring it in. Of course, I do not ignore the fact that with us, at least, early in the season when pollen is plentiful and honey comparatively scarce in the fields and woods, pollen accumulates somewhat to be balanced later on when honey is abundant and bees bring in much less of the pollen.

HOW TO LIFT A HIVE.

The editor of the *Bee-keepers' Review* states, in a footnote, "When I pick up a hive I step up behind it, reach down, and put a hand, or the finger ends, in a hand-hole on each side; raise the hive, and rest the back end of

the hive against the front of my person, and walk off with the hive. If I took the hive up by the end holes, holding the side of the hive against my person, there would be a swinging of the frames at every step I took. I have seen a novice take up a hive in that manner, and there was a 'clack,' 'clack,' 'clack,' of the frames at every step he took."

The above is very true. If there were no bee-space above the frames, the queen-excluder or cover of the hive would prevent the swinging of the frames. Where colonies have to be moved about much I very much prefer this latter method of spacing. In carrying a hive I prefer holding the cover of it against my person. In moving about as I do, and having employed many men in teaming, etc., I find that, after showing men this method, they much prefer it to resting the back of the hive against the body. The weight is better distributed, and the hive does not require to rest in part against the muscles which move the legs in walking.



HOW TO TELL WHEN BEES ARE GATHERING.

"Hello, Doolittle! How are the bees doing this year?"

"Well, Smith, the bees have done very little so far, and it is now July 10. Our apple-bloom was an entire failure, owing to the bad weather. Then we had lots of rain till within a week, since which the bees have been getting little more than a living, though for the past five days very thin nectar can be shaken from the combs in the afternoon of the warmer days."

"Is your clover in full bloom yet?"

"Well, hardly. Every thing is about two weeks late. I was noticing the buds on the basswood this morning, and I should say that it would be July 20 before the very earliest would open."

"Well, that is late. How late did you ever know it before?"

"July 16; and all the way from that to July 1 as the earliest."

"Quite a variation, surely. Have you a little time for talking to-day?"

"I will take a little time if you wish. What is on your mind at this time?"

"I have been told that a person can tell when bees are gathering honey and when they are not by simply looking at the bees at the entrance of the hive; but I must confess that I can not to any satisfaction. Will you tell me how it is done?"

"This is somewhat hard when very little nectar is coming in; but when the bees are

gathering freely any one should be able to tell by simply looking at the entrance."

"I have looked, and am not able to tell. Tell me how to look."

"Well, when the bees are heavily loaded or gathering freely they will fall short of the entrance when coming in with their loads. In other words they will drop before they reach the alighting-board; and if the yield of nectar is profuse they will drop all about, on top of the hive, down in the grass, etc., and often five to ten feet from the hive. This is especially true with a profuse yield from basswood during the early morning hours."

"But I had supposed that these early bees which dropped down were carrying water."

"Bees carrying water do sometimes fall short of the hive; but it is seldom that more than two or three bees are seen falling when carrying water, while with plenty of nectar from the basswood the ground about the hive will be covered with them speaking approximately."

"I see. I will bear that in mind in the future. But how can I tell when nectar is coming in slowly?"

"Wait till about three or four o'clock in afternoon, at which time, as a rule, the bees will be at work the strongest, and the sun will be shining at the right angle, if your hives face the south, so that you can see right through a bee, as it were, when, by placing the eye close to the ground, you will discover that the bee which is carrying nectar looks transparent compared with those which are carrying nothing."

"How about the water-carriers?"

"They will be still more transparent; but as the water-carriers are few in number beside those that carry nectar, when any nectar is to be had, you should not be fooled by these. Now, if you will put one of your colonies on a pair of scales, one that has a pointer that marks off the pounds and ounces, and then make your observations at a time when the scales tell you that a little honey is coming in, and from that to a good yield, you will soon see how you can tell at any time about what the bees are doing."

"I had not thought of that. Do you have a hive on scales?"

"Not of late years. I used to keep one thus, and this had much to do with my judging from 'outside appearances; but of late years it has not been difficult for me to tell what the bees are doing."

"It is quite easy to tell when bees are gathering pollen."

"Yes, but not so easy always to tell what source all the pollen gathered comes from."

"It is easy to tell dandelion pollen."

"Yes, from its color, resembling the color of the bloom. But all flowers do not give pollen of the same color as the blossom."

"I supposed they did. I have seen bees gathering pollen from Indian plantain and from corn tassel, and the bee-gathered pellets were of the same color as the bloom."

"Yes, you are perfectly right there; but did you ever note the color of pollen coming from white clover?"

"I supposed the white clover yielded only honey."

"Have you never noticed a dark greenish-brown pollen on the bees at this time of the year?"

"Yes, but I never knew where it came from."

"That is from white, red, and alsike clover."

"How do you know?"

"By watching the bees when on the clover-blossoms. This same pollen is what is stored in the combs mostly to carry over the winter, and the same that our fathers used to call 'bee-bread.'"

"Is that so? I have seen piles and piles of bee-bread, but had no idea it was clover pollen. Do bees that gather pollen gather honey also, or are there two classes?"

"What do you mean by two classes?"

"Just this: One class of bees that gather only pollen during their lifetime, and another class that gather only nectar or honey?"

"Then I should answer that there are not two separate classes."

"What then?"

"The field bee may gather nectar and no pollen, or it may gather pollen and no nectar, doing the same on the same day. In other words, the same bee may gather only pollen in the forenoon and only nectar in the afternoon."

"Is not the most of the pollen gathered in the morning?"

"That depends upon what the pollen is being gathered from. Mainly, it would be right; but with hard maple and the clovers, especially the clovers, the most will be gathered in the afternoon, for the reason that the bees gather very little from the clovers before 9:30 A. M."

"Do bees gather both pollen and honey at the same trip?"

"Not from corn-tassel, Indian plantain, and such like pollen-producers only; but where flowers yield both honey and pollen, both are gathered on the same trip."

"But some claim bees do not gather both on the same trip. do they not?"

"Yes. I was noting only a short time ago that so good an authority as Dr. Miller gave utterance to this in the *American Bee Journal*; but doubtless he had not thought of examining a bee coming in with that greenish-brown pollen from clover, for had he done so it is almost sure he would not have penned what he did."

"Perhaps he would call that bee-bread and not pollen."

"I hardly think that, for there is more clover pollen gathered during each year than from any other plant or tree which blooms, owing to the time of the flowering of clover covering a much longer period than any other one kind of tree or plant. But only the close observer notices this pollen, as it is so near the color of the pollen-baskets of the bees, so they go in with it unobserved, while the lighter-colored pollen attracts the eye just the instant the bee is noted."

"But how do you know that bees carry

both nectar and pollen on the same trip when working on clover?"

"By catching a returning bee and dissecting it, or causing it by gentle pressure of the abdomen to throw out the nectar on the tongue."

"That is proof, sure. Now just one more question and I must be going. You told us in one of your conversations to keep combs of honey for feeding in the spring, but you did not say how to keep the honey in them from granulating. How is this done?"

"I take no special pains to prevent the granulation of the honey in such combs. In fact, I never thought of the matter before. I leave them with the bees till I clean all honey off the hives in the fall, when it is piled away in the hives, just as left by the bees when they are run down off it through a Porter bee-escape. At the out-apiary these hives are simply stacked up as was given in 'A Year's Work at the Out-apiary,' and left thus till I wish to use them for feeding in the spring. Those at the home apiary are carried to the storeroom in the shop, and so left till wanted in the spring or early summer, and I never had any granulated honey thrown out at the entrance from such combs, that I remember. Honey soon liquefies, where granulated, when with a good colony of bees during the summer heat, which often comes during May in this locality. If I had any trouble from granulated honey being thrown out of the hive by the bees I would store the combs in a warm room during the winter, so that the honey might remain liquid."



Be careful not to allow caged queens or bees to remain in the sun or any hot place. A few days ago I caged a queen with the usual escort to take to an out-apiary. The cage was in the pocket of a dark-colored coat which was left lying on the wagon-seat. Two or three hours later all were dead.

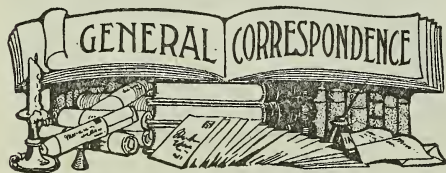
We all know how bees will collect around a cage that has held a queen. Has any one noticed that drones will do the same? It is new to me; but yesterday, among the bunch of bees that gathered on a cage that had held a queen for several days, were three drones.

Bicycle trousers-guards have been recommended for keeping the bees from crawling up where they are not wanted. A light rubber band is even more effective. A supply of them can be kept in the pocket at all times, and they do not weigh much or take up much room.

Will C. W. Dayton or any one else tell us why naturally built comb should not last just as long as that built on foundation? One would infer from his article on p. 838 that he believed otherwise. We will grant that naturally built comb may contain more drone comb than is desirable, which will need to be replaced. Accidents will happen to combs, making holes that the bees are apt to fill with drone comb, making these combs in time less desirable unless they are kept patched up. But are not these accidents just as likely to happen to a comb that was originally built on a full sheet of foundation as to one naturally built?

WOODPECKERS.

In GLEANINGS for Nov. 15, 1906, is an illustration of damage done to hives by woodpeckers. These were much more considerate than the woodpeckers here, boring only through the hand-holes, where the damage could be easily repaired. I have seen hives here where the giant woodpecker had chiseled great jagged holes in the upper edge of the hives, beginning at the crevice between the hive and cover, and doing a great deal of damage. This giant woodpecker makes itself a great nuisance here by boring holes into buildings, apparently out of pure mischief, as sometimes several holes will be bored close together through perfectly sound wood. I have had to shoot a number to keep them from filling our house full of holes; and while at this writing a vigorous rap-rap-rap on the gable end of the house called me out to settle with the mischief-maker.



FEEDING BACK EXTRACTED HONEY.

How this Plan Can be Made Profitable in the Production of Comb Honey; the Importance of Thinning the Honey and Feeding During a Natural Honey-flow.

BY E. W. ALEXANDER.

[This article deals with a very seasonable subject, particularly this poor year when there will be many unfinished sections. The knowledge of how to complete them, thus rendering them fit for the market, is important. Incidentally this will supplement the article by J. E. Hand in this issue.—ED.]

On page 645 friend Reddout calls my attention to this subject. He can hardly see why there should be such a difference of opinion on this subject as there seems to be. I also can not see how there could be any variation in the results, only such as would naturally follow from the difference in the time of the season in which the feeding was

practiced, the quality of food, and in the way in which it was given.

My first experience along this line was something over 30 years ago. The honey fed was thick extracted, and fed in its natural state after the August harvest was past. This I fed for the purpose of finishing up partly filled sections. I soon found this was a very unnatural time of the year for bees to build comb, as nearly every night was quite cold, with frequent frosts. I also found that it took on an average a little more than 3 lbs. of extracted honey fed in this way to produce 1 lb. of comb honey, and it frequently granulated in the sections in a short time so as to spoil their take.

I next tried thinning the honey with boiling water to about the consistency of nectar. This made a great difference in results. The bees took it from their feeders more readily, and it did not require nearly as much honey to fill their sections, and I was not troubled any more with its granulating in the combs; but I was not satisfied to stop here when I could see that it required nearly 2 lbs. of extracted honey to produce one of comb, and I realized that I was fighting natural law in trying to force my bees to produce comb honey decidedly out of season.

My next step was to make extracted honey very thin with hot water, and feed it to certain colonies producing comb honey during the entire summer harvest, giving each colony about all it could handle during the night. At first I was afraid it would have a tendency to check their work during the day; but, not so. It seemed to act as a stimulus to still greater activity when they could go to the flowers. Then I felt I had solved the problem of producing comb honey from extracted. There were no more partly filled sections to bother with; no more travel-stained sections to sell at a reduced price, but every one nicely filled out clear to the wood, and well capped.

I then found I had at my control for about 60 days as rich a harvest for the colonies I ran for comb honey as I could desire, and with not a break of even a day it was a pleasure to see those sections filled with choice comb honey.

I don't think it possible to feed thick extracted honey to bees for the purpose of producing comb honey so as to derive any profit from it after the honey-producing season is over. I think that nearly all those that have ever tried it, and went only so far along this line, have given it up in disgust. But when I took up this line of the business I went much further than any I had ever heard of, and made it a success.

The day is coming when the comb-honey producer will find it as I have stated above. He will have complete control of his harvest for comb honey simply by keeping a few more colonies and running them wholly for extracted honey to help his comb-honey colonies along during those natural changes of the atmosphere which frequently cause the flowers to stop secreting nectar several days at a time. Then the bees stop working

in their sections, their combs turn yellow, and, if the honey-dearth lasts many days, as it sometimes does, it requires a good harvest to start them at work again in their sections, and then those sections will never sell for the highest market price. This can all be prevented when there is a good feeder under every hive, and tanks full of extracted honey.

There must be many comb-honey producers who can throw some light on this subject; and, although I am out of this class, and giving only my own mite of experience when I produced comb honey, I should be much pleased to hear through GLEANINGS the experience of others.

I repeat that, in order to produce comb honey from extracted at any profit, it must be done during hot weather while the bees are gathering nectar from the flowers; and the honey, before it is fed, must be thinned with boiling water to about the consistency of nectar. To feed thick, extracted honey out of season to produce comb honey is a waste of both time and honey; and the small amount of comb honey that is produced is likely to granulate and become unsalable.

This is one of those leading subjects which should receive our attention until our markets are free from so much unsalable honey as we often see. With the knowledge and appliances for producing honey we now have, no man is excusable for putting a poor article on the market; and it is a duty we owe to ourselves and each other to condemn this practice wherever we see it. I can not see how locality can make much difference in this matter; but I can readily see that, if honey is thinned to the consistency of nectar with boiling water, it will have a tendency to prevent its granulating; and if fed to bees in this condition during the season when it is natural for them to build comb and are gathering nectar from the flowers, a short slim harvest can be changed to a long rich one, for the bees will simply be helped to carry out their natural instinct, and success will be the result.

Delanson, N. Y.

DOES IT PAY TO EXTRACT SECTIONS?

The General Problem of Unfinished Sections.

BY G. C. GREINER.

As a rule, this question will have to be answered in the negative. It is too much fussing for the little gain derived from the operation. However, there are exceptional cases when it is not only desirable but in a small way profitable.

During the many years of my bee-keeping, conditions have occasionally been such that I felt the desire to extract sections; but as I thought it could not be done without running too much risk of breaking the combs from the wood, and, besides, not having any convenient rig to do the job in a satisfactory way, I have never, until lately, made the at-

tempt. I have always let my bees do the extracting—that is, any unfinished sections which I reserved for next season's bait-combs I set out for the bees to help themselves. This is an easy way to get these sections cleaned out; but it has the disadvantage that the colonies that don't need any feeding get it all or nearly all, while those that are sorely in need of stores get very little if any.

We may take it for granted that no bee-keeper would even think of extracting finished sections, or even such unfinished sections as could be profitably disposed of as chunk honey, or used otherwise to advantage. But some seasons produce a certain kind of unfinished sections that seemed to be made for the extractor. According to the peculiarities of different seasons' honey-flows, we have, as mentioned in a previous article, two distinct types of unfinished sections. One kind is partly built out, some not larger than the inside of a hand, but all drawn out, filled with honey, and every cell capped over, while the other is all built and drawn out, filled more or less with honey, but little, if any, capped. The past season produced in this locality, with the exception of very little finished honey (where bait-combs had been supplied) the latter kind.

During the five days of white-clover honey-flow, lasting from the 26th until the 30th of June, honey was gathered in such quantities that the comb-builders had all they could

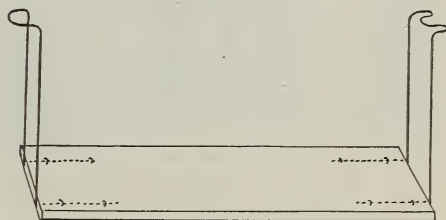


FIG. 1.

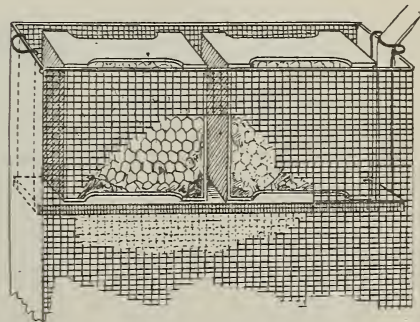


FIG. 2.—GREINER'S COMB-BASKET RACK FOR HOLDING SECTIONS IN THE EXTRACTOR.

do to furnish storage for the incoming nectar; and when the combs were built and drawn out they were also filled with honey, and about ready to be capped. Just then the honey-flow ceased; and so complete was the following failure that not the least progress was made in sections for the remainder of

the season, although enough was gathered most of the time for bees to live on and to store a little in the brood-chamber. This explains why the largest share of our crop consisted of just such unfinished sections as could be extracted with very little trouble; and as extracted honey was so very scarce, the little that those sections contained looked big in my eyes, which induced me to try the extractor.

As I said before, I had no convenient way to extract sections; but being anxious to try the experiment, a few minutes' work solved the problem.

The accompanying drawing, Fig. 1, represents a little adjustable shelf that is suspended by wire hooks into the upper part of the extractor-basket, as shown at Fig. 2. It is made of half-inch lumber, and fits loosely into the comb-basket. The dotted lines show the position of the wires on the under side of the shelf, where they are fastened by two little staples clinched above. The shelf should not be hung too low. If the sections project above the basket enough for a hold, it will make it all the more convenient. If we use the precaution of reversing the basket twice, or, in other words, if we reverse the basket after part of the contents is thrown out from one side by moderate speed, before trying to make a clean sweep, it is almost impossible to detach the combs from the wood or even bend them out of shape, if they are reasonably fastened to the sides. They will bear the same speed as regular extracting-combs.

Simple as this little arrangement may seem, it does the work to perfection; and I am surprised that I did not put this scheme into practice years ago. It may be well enough to let bees have access to our sections after they are passed through the extractor. Although they are in very good condition for winter storage without it, the little trouble will improve them for next year's use.

La Salle, N. Y.

WHAT WE OWE THE GERMANS AND WHAT THEY OWE US.

BY DR. C. C. MILLER.

It is greatly to be regretted that in this country there is so much ignorance among bee-keepers, editors and all, as to the great debt of gratitude we owe Germany for the devices and discoveries of her able and patient investigators. Unfortunately the same may be said as to conditions on the other side. Although in some German bee-journals American methods are in good credit, in others there is too much tendency to say that any good thing in America came from Germany. Conspicuous is the utter ignoring of Langstroth's claims, giving to Dzierzon entire credit for the invention of movable combs. The truth is, that the two men each worked independently, without knowing what was done by the other. But Dzierzon's invention was not a movable *frame*, only a top-bar requiring the comb to be cut away at the sides each time it was lifted out, and the last comb

could be taken out of the hive only by first removing all the others; and it is well known that for years Dzierzon would not use a movable *frame*.

And now Doolittle's laurels seem to be threatened. In *Bienen-Vater* is given a full account of artificial cell-cups invented by William Wankler, and his method of queen-rearing, with illustrations. Well, it is nothing strange that the two men should conceive of the same thing, and that takes away nothing from the credit of either. But in *Deutsche Imker aus Boehmen*, p. 35, occurs this: "Since 1880 Wankler has carried on queen-breeding on a large scale; *he can be considered as the real inventor of the American method of queen-rearing*, for at the exposition in Munich, 1883, Frank Benton had Wankler fully explain his method, then bought from Wankler several drawings, as well as the glossometer, and subsequently made known and spread this method in America."

I do not know how much Mr. Benton did toward making known what he learned from Wankler, but I have kept pretty close track of bee literature in this country, and I do not remember ever to have seen mention of it. This much is certain: Doolittle made and used artificial cell-cups *before 1883*, and until this year of our Lord 1907 he never had any inkling from Mr. Benton or any one else that any thing of the kind was done in Germany until it was learned from America; and it is safe to say that the American method of queen-rearing would have been exactly what it is to-day if Wankler had never been born—this without in the least detracting from any credit due Wankler. It was his misfortune rather than his fault that his countrymen were so slow to recognize any good thing in what he had done, as he himself relates in *Bienen-Vater*. Neither, by any means, do I mean to say that the entire credit belongs to any one man for the present condition of American queen culture. Mr. Doolittle would be the first to give credit to a number of others for their part.

After all this is said, I want to stop where I started, by saying that very few bee-keepers in this country realize the debt of gratitude we owe to pioneers across the sea for all we have learned—are still learning—from them.

[Honor to whom honor is due. The first man (so far as known) to use the grafting or transposition method of rearing queens was John L. Davis, of Delhi, Michigan, who briefly described his plan in GLEANINGS for September, 1874. The so-called Doolittle cell cups were perfected a little later, and are described and illustrated in GLEANINGS by W. L. Boyd, of Hamilton, Ohio, September, 1878, page 323. A certain Yankee by the name of A. I. Root adopted both of these inventions at once, and succeeded with them. It is very likely Wankler learned these things from American sources. Let me whisper, doctor, the Germans are *slow* on bee-keeping. —W. K. M.]

THE STORY OF HONEY-COMB.

How it is Built; Why the Cells are Six-sided; Cross-section Views of Cells from Comb Built at Right Angles to Glass; the Wise Man and the Fool.

BY EDWARD F. BIGELOW.

[The following article by Prof. E. F. Bigelow, the nature-study man, lecturer, and one of the editors of *St. Nicholas Magazine* on the subject of honey-comb, its construction and development, is one of the best if not the best that was ever written. The photographs are superb, and instructive as well as interesting. The article as a whole will be incorporated in the next edition of our *A B C of Bee Culture*, now in process of revision, and, later on, made the subject of a special booklet.—Ed.]

For many years the theories as to wax-production were far from the truth. Somewhere between 1744 and 1768 it was discovered that wax is produced between the plates on the lower side of the worker bee's abdomen. The honor of this discovery is usually ascribed to a Lusatian peasant of unknown name. But Thorley, a quaint writer of 1744, speaks of "six pieces of solid wax, white and transparent like gum within the plaits."

Wax is produced at the will of the bee, and when called for by the necessities of the hive. The wax-producing bees obtain a somewhat high temperature usually by close clustering, although they sometimes hang in slender festoons and chains.

"Wax is not chemically a fat or glyceride, and those who have called it 'the fat of bees' have grossly erred; yet it is nearly allied to the fats in atomic constitution, and the physiological conditions favoring the formation of one are curiously similar to those aiding in the production of the other. We put our poultry up to fat in confinement, with partial light; to secure bodily inactivity we keep warm and feed highly. Our bees, under Nature's teaching, put themselves up to yield wax under conditions so parallel that



FIG. 1.—EDGE OF HONEY-COMB BUILT NEXT TO GLASS—ENLARGED VIEW.

The cells are partly filled with honey. This illustration shows that the cells are not straight and horizontal, but curved and slanting upward.

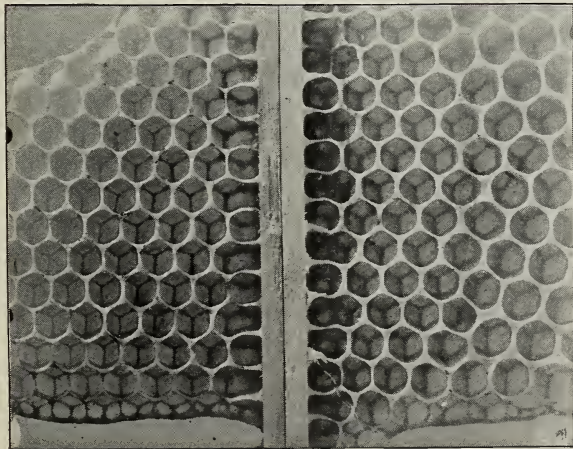


FIG. 2.—CIRCULAR CELLS

The elongated-attachment cells much resemble the soap-bubble forms shown in Fig. 3.

the suitability of the fattening-coop is vindicated."—*Cheshire*.

On the inner side of the eight plates lining the lower side of the abdomen are about 140,000 glands (*Cheshire*), from which the wax is secreted as a white liquid, which hardens on exposure to the air. When first formed it is white and very brittle, and is pulled out from between the plates by the pincers on the hind legs. The pieces of wax are then passed to the front legs, and thence to the mouth, where they are made plastic by the addition of various materials in the saliva and by thorough mastication.

From this raw material the sculpture bees make three kinds of cells. First, at certain times of the year, when a new queen is needed, they build a few large, almost perpendicular, peanut-shaped cells. The two other

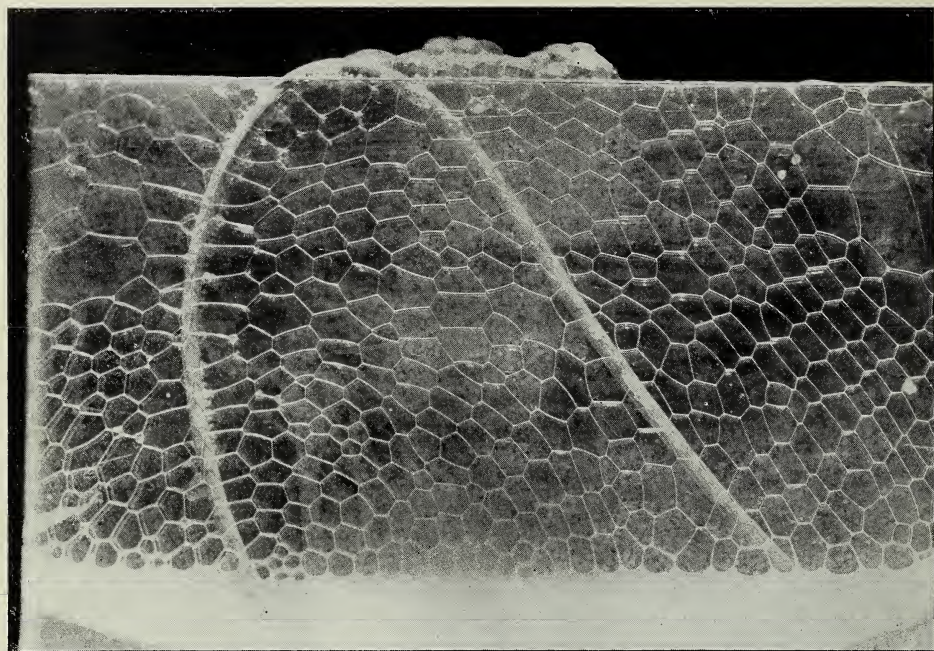


FIG. 3—SOAP-BUBBLES BLOWN BETWEEN TWO PIECES OF GLASS TO SHOW THE RESEMBLANCE TO HONEY-COMB.

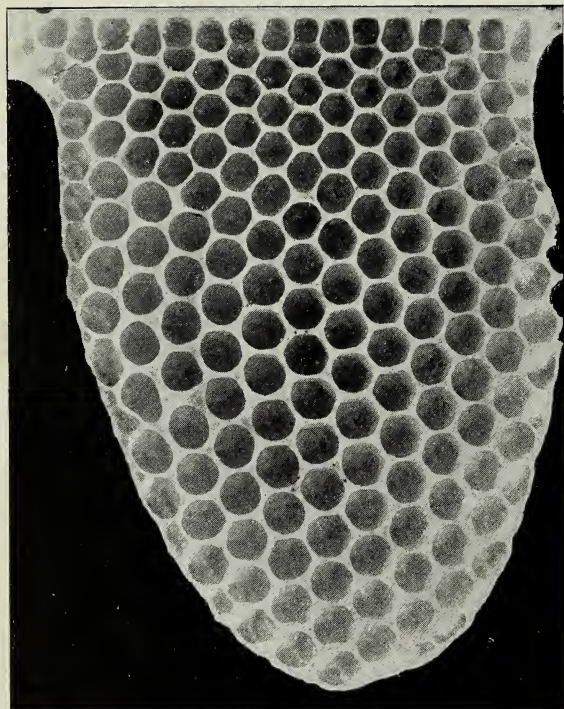


FIG. 4.—A COMBINATION OF WORKER AND DRONE CELLS. None of the angles are sharp, and most of the cells are circular.

kinds, drone-cells and worker-cells, are practically the same in form, the drone-cells differing in being larger. As their names imply, they are used for rearing drones (the male bees) and workers (undeveloped females). Both kinds of cells are nearly horizontal, slanting upward slightly from the center to the exterior of the comb. Both kinds are used for the storage of honey, and this slight inclination facilitates the filling of the cell, and prevents the honey from running out before the cap is added. See Fig. 1.

All three forms are *primarily* cylindrical. The queen-cells, isolated from the others, always remain cylindrical. All solitary bees (not honey-bees) make such cells. The hexagonal form is due largely to mutual pressure, and partly to optical illusion. Cells near the edge of the comb, where it is attached to some support, are either circular or elongated circular. See Fig. 2.

A soap-bubble floating in air is circular in every direction—that bubble is a sphere. Let it fall on a table and it becomes flattened on one side. Let there be pressure on every part, and the outlines are no longer circles but polygons. Let a mass

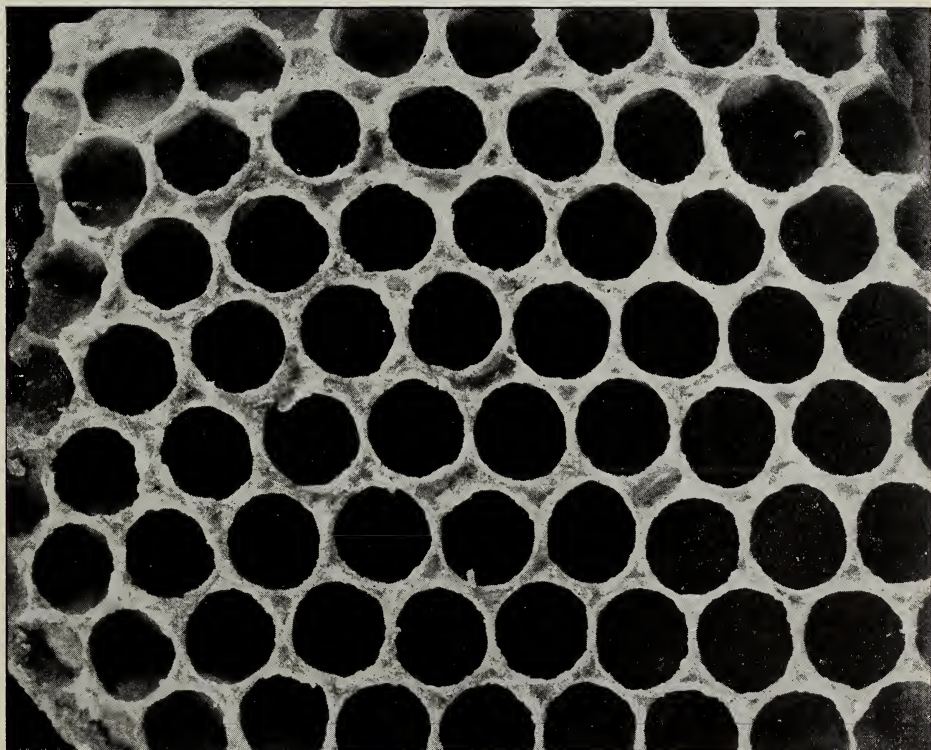
of soap-bubbles be confined, one layer between two sheets of glass, and they become short polygonal tubes. If sizes are equal and pressure from every direction is the same the outlines will be regular hexagons, the same as those of worker-comb cells. If these conditions vary, the outlines will be irregular polygons but mostly six-sided. See Fig. 3. Worker-cells seem to be more closely crowded together than drone-cells, and thus have their angles, in most cases, more sharply defined. In drone comb some cells are almost without angles, the spaces between the tubes being filled in by a thickening of the cell walls greater than is customary. See Figs. 4 and 5. In such parts a casual glance shows them to be almost as hexagonal as is the usual type. But close examination or magnifying shows many cells that are cylindrical tubes. The more one studies comb, the more firmly is he impressed by the belief that the original "intention" of the bee is to produce a hollow cylinder, and that the hexagonal result is due solely to the force of circumstances, and is entirely "unintentional."

A correspondent recently told me that, after her house was burned down, workmen, in clearing away the ruins, found in the cellar, amid the debris, a box of glass "mar-

bles" that had belonged to her young son. Under the heat and the pressure the marbles had become a solid mass; they had "run together." A workman, in knocking off the clinging cinders, broke the mass in two. The interior presented an almost perfect honey-comb effect, each marble being a spherical polygon. So cylinders or spheres, pressed together uniformly in every direction, and submitting to that pressure, become hexagonal in outline.

Much has been written about the mathematically exact angles of honey-comb. Some philosophers have stoutly maintained that the bees have solved difficult problems, and that their work is an example of the wonderful perfection of nature or of natural instinct. Many of these claims make interesting reading. Abstruse theories and complex formulæ have been contributed to sustain these claims. But they lack one essential feature, and in this they do not stand alone, even in the productions of writers on natural history—they are not true.

Actual measurements of the angles show that they greatly vary. But, notwithstanding the fact that the cells vary in size and form, comb is none the less a wonderful structure, with all its parts arranged for the greatest strength, the largest storing capac-



A STUDY IN CELL-MAKING.

Note that the cells are made independent of each other, and that it is the refuse wax, like droppings of molten tar in brick-laying, that seems to tumble into the interstices to fill up.

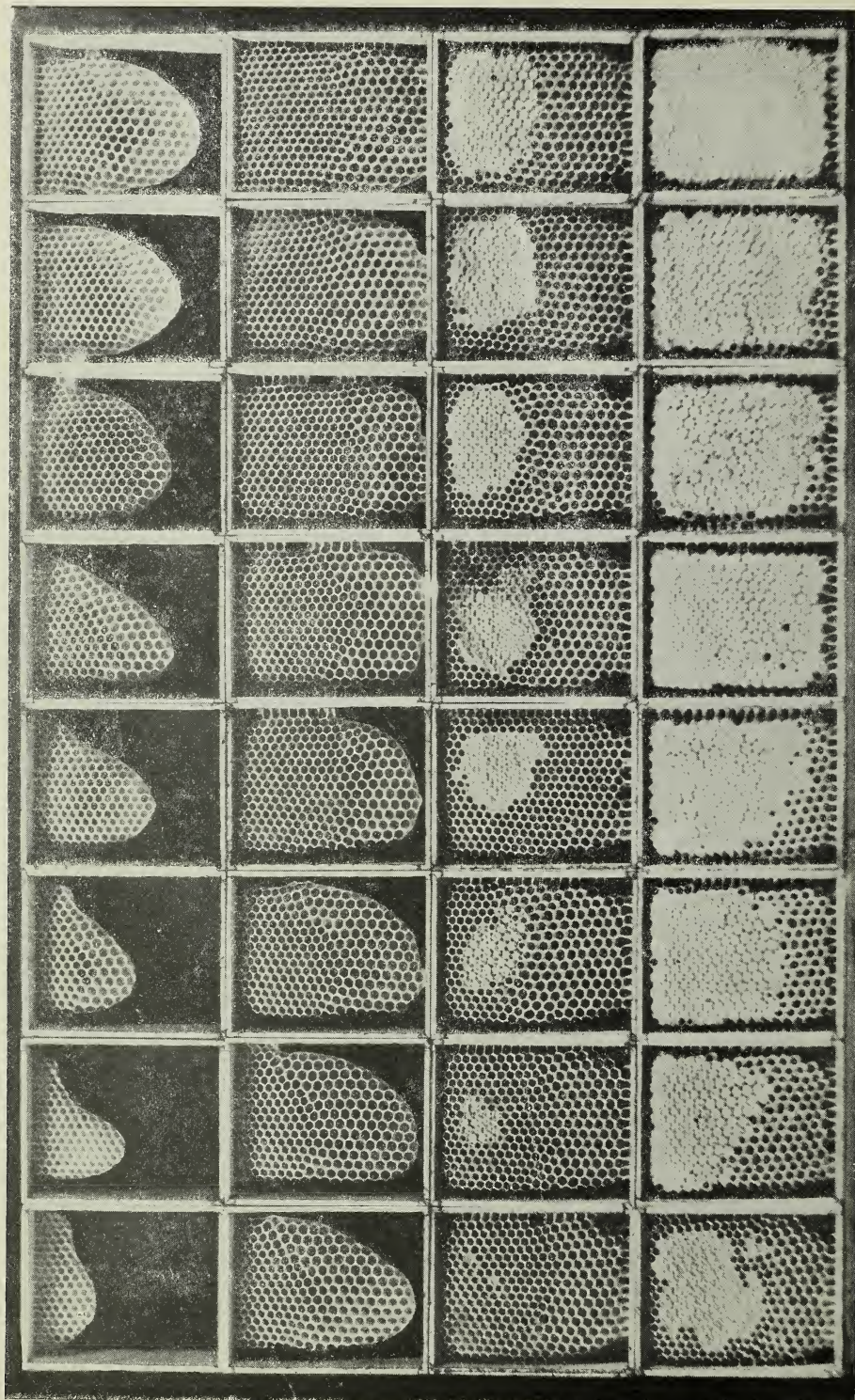


FIG. 6.—THE DEVELOPMENT OF COMB HONEY.
Note.—These sections were selected from two supers of 32 sections each.

ity, and most perfect adaptation to circumstances. Wax is produced by the bee at a great expenditure of labor, material, and strength. Well-informed investigators say that "The costliness of wax to the bee, since it can be produced only at the expense of many times its own weight of honey or sugar, has led to great economy, one pound of it being molded into 35,000 worker-cells," while others have observed 50,000 made from that amount. To help the bee in this economy, apiarists have found it advantageous to use machinery which shall work the same material over and over. As the combs become old they are melted, the pure wax taken out and remodeled into thin comb-building foundations. But this is in no sense the manufacturing of a new product, but an extracting, purifying, and remodeling of the bees' own choice material. It simply saves the bees much arduous labor that machinery can do easier and at less expense, when we consider the effect on the bee.

No one is fool enough to claim that a suit of clothes made on a machine is any more "artificial" than one sewed by hand. It is simply economy of labor. Yet hundreds of persons have the incorrect notion that there is a honey-comb made from wood pulp, punk, putty, paraffine, or from material other than wax. I say, "fool enough" advisedly, because a wise man changes his mind (when it becomes necessary); but a fool never. It would not be surprising in these days of sensational journalism and of false nature-stories if one should get the notion that artificial comb honey really exists; but the fool part comes in when a person, totally inexperienced with bees, stoutly and smilingly maintains that there is such a thing as manufactured honey in the comb. I feel sure that the inimitable fool expression of such a person is the origin of the colloquialism, "The smile that won't come off." No use. Do not argue. It won't come. "Why, I've seen it at the stores. Grocer told me all about it—was several cents cheaper. I tried it; we didn't like it as well as the genuine." And then the bee-keeper goes away, not a wiser but a madder man, and wonders why the fool-killer doesn't do his duty, and why every one (except the bee-keeper) knows all about bees and their products.

It is, however, true that there are many interesting problems about comb-building that even the experienced bee-keeper doesn't know. To me one of the most interesting of these problems has been the fact that bees

carry along at the same time the comb and the storage work in the sections in all stages of progress. If an empty super were put on a colony so strong that the bees "boiled" up into all parts of the super, so that there was no vacant "standing room" left in any section, one would suppose that the work of comb-building would begin in all sections at the same time, and progress with about equal rapidity. But it doesn't. A few sections in the center will be completed before work has been started in some of the outer sections, and nearly all gradations may be observed between the extremes. From two supers on a ten-frame hive I selected one-half, that is, 32, as shown in Fig. 6, that ex-

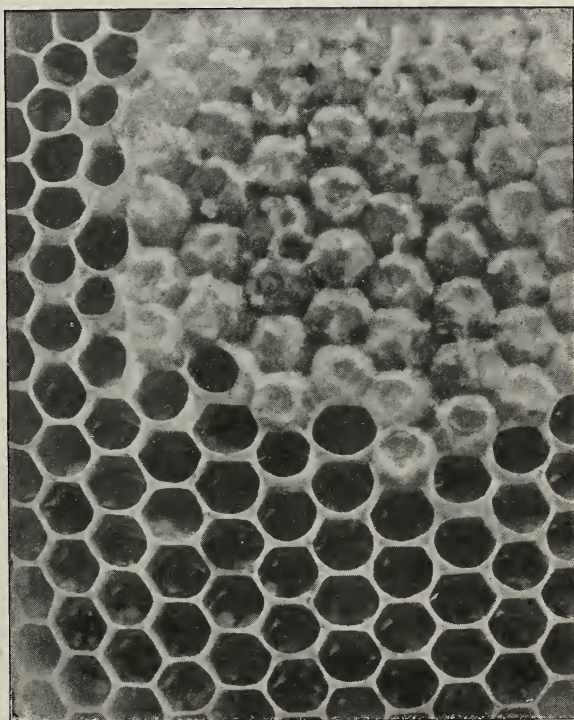


FIG. 7.—DRONE-CELLS USED FOR HONEY-STORAGE

It will be seen that the lower part of the opening is capped first. This, with the slant of the cell, keeps the new honey from running out.

hibited seriatim every part of the progress from the first extension of the suggestive nest-egg starter to the completed fancy section. Another series, almost as well graded, could have been made up from the other 32 sections. Now, why was it that there were not 32 or more one-eighth filled, then one-quarter filled, then one half filled, and so on gradually, *all* advancing "right dress," and about equally in a uniform line of progress, till all had been brought to completion?

Drone-cells and worker-cells are made from new wax, and are at first of pearly whiteness, which soon becomes yellowish. Queen-cells are made mostly from surround-

ing comb, so a queen-cell, if just completed, is aged in appearance if on old comb. Almost any material is used, yet not extravagantly. So economical are the bees that they "pit" the cell till it has the roughness of a peanut. This arrangement of material gives greater strength than the same amount would give in a layer of uniform thickness—on the principle that a certain amount of material is stronger in a large hollow cylinder than in a smaller one that is solid.

Bees change readily from the building of worker-cells to drone-cells. They seem to have no trouble in making correct adjustments and angles. It is not at all uncommon to see a group of drone-cells near adjoining worker-cells on the same comb. One wonders why the bees change the size of the cells. When capped over for honey, both are of the same height; but when with brood the drone-cell cappings stand above the surrounding worker-cells. The cappings of the drone-cells are made stronger by six bracing ribs or buttresses, Fig. 7. This gives the whole capping a most beautiful appearance when viewed as an opaque object under a microscope. The cappings of both cells, though extremely thin, are not air-tight. It is wonderful to observe how the bees adapt the comb to the form of the hive, often curving it, and sometimes making it cylindrical. In the arrangement of the several combs of a hive there is wonderful provision for the ventilation of every cell, and for the convenience of the workers in the various departments of labor. What a wonderful coincidence (or shall we say purpose?) is it that honey-bees do not make their cells of paper

as do wasps, yellow-jackets, bumble-bees, and hornets! If they did so, the luxury of comb honey would be unknown. Honey-bees place their combs perpendicularly. All paper combs with which I am familiar are horizontal.

THE HOME OF THE BANATER BEES.

What Hungary is Doing for Apiculture.

BY RALPH BENTON, B. S.,

Assistant in Entomology, University of California.

In some respects it can be said with truth that the little kingdom of Hungary leads the world in apiculture. The Hungarians are a shrewd, thrifty people, agriculturally inclined—of Asiatic origin, and intensely patriotic. This last characteristic is particularly shown by the fact that the young students of the country even refuse to learn German for fear of Austrian encroachment and dominance. Budapest, the capital, is the Paris of Oriental Europe—rich commercially through the business-like qualities of the Jewish-Hungarian merchant. And it is in the vicinity of this city at Godolo that the Hungarian State School of Apiculture, whence that splendid system of governmental fostering of bee-keeping is directed, has its location. Here there is offered to the youth of the kingdom a two-years' course devoted entirely to apiculture in all its branches.

It was with intense interest that, in company with the Under-secretary of Agriculture from Budapest, we inspected the bee school and farm at Godolo. Vacation was nearing



AN APIARY AT TEMESVAR, HUNGARY; HIVES OF THE BERLEPSCH PATTERN.

its end, and already several of the instructors were on hand for the short summer session of two weeks in August devoted entirely to the instruction of women students. Among the buildings was the ladies' dormitory, but waiting for the arrival of the students. We were also shown through the men's dormitory where the regular-term students have their quarters. An interesting feature in one of the buildings was the apicultural museum where all the various hives and implements used throughout Europe and America at the present time, as well as the old models of hives, were on exhibition. We were then shown through a series of bee-houses filled with hives of the Berlepsch pattern, so commonly used in Eastern Europe.

One interesting experiment in progress was that of determining the fact whether queens lay drone or worker eggs at will. It has been heretofore advanced by some that the position of the queen's body when ovipositing determines whether the egg is fertilized or not, and that, when ovipositing in a larger cell than a worker-cell, the egg passes out without being fertilized. The interpretation was that the body of the queen is in such a position that the egg does not come in contact with the duct leading from the spermatheca. The experiment under way was as follows:

All worker combs had been removed from the colony, and nothing but drone comb supplied to the bees, and no room was left for the bees to build more comb. The result was the rearing of workers in drone-cells, showing that fertilized eggs can be deposited in drone-cells. The workers were somewhat larger than those reared in worker-cells. The bees of the colony so treated were more excitable, being, apparently, cross over the imposition.

The Banater (or Hungarian) bees are a very gentle race, resembling in many respects the more familiar Carniolans. They are somewhat smaller than the latter, and have a greater tendency to show yellow. This yellow becomes more pronounced toward the east, in the Siebenberg region. The writer also noticed, in going southward through Servia, Bulgaria, into Turkey, a gradual shading off into yellow, and a steady increase of the excitability shading off into the very excitable bees of the Orient. It is said by Hungarian bee-keepers that they have no excessive swarming with their bees, and that the Banater bees are yet prolific and excellent honey-gatherers. This is also the testimony of those who have had experience with this race of bees as imported into this country.

Among other things seen at Godolo were the apiaries in Langstroth-Dadant hives, and also the shops where the students learn to make hives of this and other patterns. The different experiments being conducted on the farm with various honey-producing plants were indicative of the value of the school to the bee-keepers at large.

Connected indirectly with the school are some eight or ten inspectors who each have a district of the kingdom to travel over and

instruct and encourage the people in bee-keeping. Along the lines of the state railway, at the section and station houses, are small apiaries fostered by the government, for the dissemination of knowledge concerning bees. To those interested in bees it is a source of great pleasure to ride along on the train and see apiary after apiary and realize that the little kingdom of Hungary annually expends in the interest of apiculture \$50,000, or a sum equal to five times that expended annually by the United States for apiculture.

In the cool of the evening, our tour of inspection over, we sat out on the balcony of the main building of the school at Godolo and partook of our meat and bread and grapes, even enjoying in varying degrees the Hungarian national dish—uncooked red peppers. The sun slowly sank in the west, lighting up the east with a reddened tint, and the rolling prairies of the Danube brought vividly to our minds the great plains of our own America as we drowsily talked on into the night. The next day or two found us hurrying on the train to the south of the kingdom, where we stopped at Temesvar to turn aside and spend a quiet day with Baron Bela Ambrozy, on his estate at Gyarmata. Here again we met the gentle Banater bees, as also later at Nagy-Beeskerek and at the agricultural fair at Pancsova on the Serbian frontier. The baron's bees were in Berlepsch hives, some of straw as will be seen in the accompanying cut, showing Baron B. among the bees. It was with interest that we learned of the recent successful introduction and propagation by the baron of our own honey-plant, phacelia, so productive in California. He finds that this plant blooms during the summer drouth, and is a most invaluable source of honey at that critical time. His parting words were: "Tell the bee-keepers of America to grow phacelia."

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; a Hive-lifting Device and Its Uses.

BY J. E. HAND.

[This article on the subject of swarm control in the production of comb honey is of exceptional interest. It is almost a startling innovation to suggest that no colony must be allowed to cap its sections while the honey-flow is on, and that the capping work must be accomplished after the season is over by feeding back. Did we not know that Mr. Hand is able to control swarming and produce all fancy honey by this strange procedure we would hesitate to place this before our readers without raising a question. In order to read this intelligently, all prejudice should be laid aside, and the statements as to the condition of the colonies as set forth in previous articles should be carefully kept in mind. Each of these articles presupposes a thorough knowledge of what has been written before, and without that knowledge the reader will fail to catch the whole plan. One of the points to remember in the reading of this article is that Mr. Hand has his apiary divided into three divisions of 50 each. One of the 50 is run for *extracted* honey that is to be fed back to finish out unfinished sections, and the other 50 colonies are to be devoted to the production of *comb honey*. On this point the reader would do well to read over again carefully page 846 of our June 15th issue.—ED.]

As we do not handle brood-frames, and as all our manipulations will be by hives, it is advisable to use some kind of hive-lifting device. Some are inclined to ridicule the idea of such an invention, and claim that it is more work to move a machine of this kind about the apiary than to handle the hives; however, in manipulating the sectional hives for swarm control some kind of hive-handling machine is a positive necessity, and we are using with much satisfaction a very simple affair that is both rapid and easy of opera-

tion, and at the same time is light and will adapt itself to uneven ground.

The illustration will help to make our description plain. The clamp is made like two pairs of ice-tongs, connected by a bar at each side. Blunt teeth on the inside prevent any slipping. The jaws open wide enough to drop down over the hive. A tightening of the rope will close the jaws across the ends of the hive, and a slight pull on the hoisting-rope will quickly raise the heaviest hive, and a self locking device on the rope will hold



J. E. HAND'S HIVE-LIFTER.

It will be seen that a rope tackle is used in connection with a very simple clamp, made on the principle of ice-tongs. This can be instantly adjusted, and will not slip. By pulling with one hand on the rope, the heaviest hive can be easily raised and held in any position. An inward pull on the rope releases the lock so that the hive can be lowered.

the hive in any position, when it can be instantly raised or lowered, or held in position by a quick jerk of the rope outward to lock it and inward to release it.

This device is also very handy in weighing hives when preparing them for winter, and also during the honey-flow to see how much gain our colonies are making. Simply hook on a pair of spring balance scales and we can weigh a hive very quickly and easily.

We would not think of doing without some kind of hive-lifter; and the one here shown is both light and easy of operation, and can instantly be adjusted to any part of the hive or supers. A man can, with this device, easily raise 600 lbs., and can with one hand easily raise the heaviest hive. We find that lifting hives and supers all day is hard work; and while some may be able to perform such labor, there are many others who are not, and it is to such as these (and this includes ourselves) that this invention will be of real value.

The tripod weighs only 13 lbs., and the clamp and pulleys 8 lbs., and the clamp can be unhooked when moving, so that it is necessary to lift only 13 lbs., which is but little more than the weight of the box that we have to carry about to set the supers on while manipulating the brood-chamber. As our hives are in groups of four we find that we can manipulate hives and supers more rapidly, and very much easier, than to lift them by main strength. Indeed, the heaviest work in the apiary is by this invention actually reduced to mere child's play.

PUTTING ON MORE SUPERS.

July 8.—The weather during basswood bloom thus far has been favorable for the

secretion of nectar, and our scale hive showed a gain of 16 lbs. yesterday; and we notice that our extracting-colonies need another super of extracting-combs, so we will place on each colony a super of empty combs next to the brood-chamber, Fig. 1. If plenty of room is given these colonies in the form of empty combs directly above the brood, no other swarm preventive will be necessary during our short honey harvest.

We will next consider our 50 comb-honey col-

onies, on each of which are two section-supers with a brood-section on top. A good many bees have hatched out of this brood-section since we placed it here, and the empty cells have been filled with honey, so

we will remove it, and, with our hive-lifter, we will quickly swing the whole hive clear from the bottom-board, placing thereon the brood-section, and let the hive back in position now on the brood-section, when we will raise the section-supers, placing another super of drawn foundation next to the brood-chambers, and let the supers back in position, Fig. 2.

All this hive manipulation is done without any lifting, as a straight pull on the rope will raise the heaviest hive.

We are now up with our work, and will take a look at our chicks. It may be of interest to some of the readers of this article to know that, along with our hive manipulations, we have also been handling incubators and brooders, and gathering eggs from our 350 Brown-Leghorn-egg machines, and we have at this date 1200 motherless Brown Leghorn chicks that are more afraid of a hen than they are of a dog. But this is another subject, with apologies.

July 10.—The bees are still booming on the basswood bloom, and have lost only half a day by a shower. We will take a look at our fifty comb-honey colonies; and for fear that some of them may take a notion to swarm we will, with our hive-lifter, raise up the supers, removing the top brood-section after driving the bees down so as not to get the queen, and tier these queenless brood-sections up seven or eight high, to be drawn on for our future use. This will settle the swarming question for this season so far as these colonies

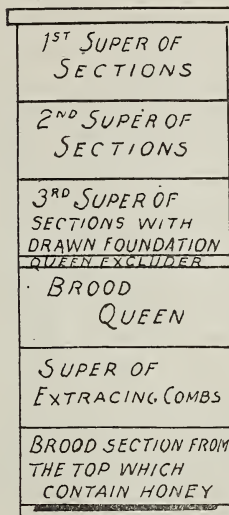


Fig. 2.—Condition of comb-honey colonies after giving the third supers.

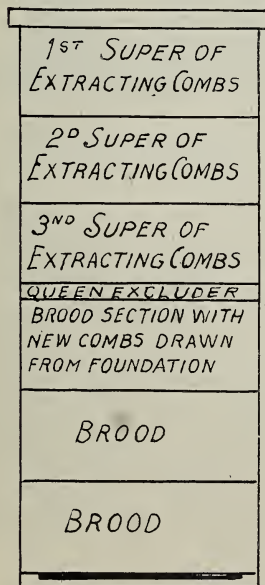


Fig. 1.—Representing the extracting colonies after the third supers are given.

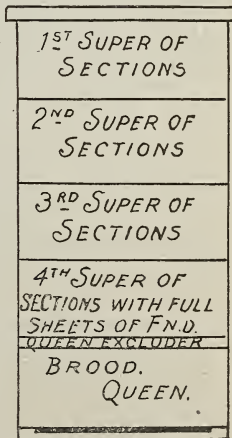


Fig. 3.—Condition of comb-honey colonies after one brood-section has been removed and the fourth super put on.

are concerned, as the basswood flow will last only about a week longer. Our booming colonies are filling the supers at a great rate, so we will place on each colony a section-super having the sections solid full of foundation, placing the empty supers next to the brood-chamber, Fig. 3.

FINISHING SECTIONS BY FEEDING BACK EXTRACTED HONEY.

Perhaps by this time some of the readers of this article are thinking what a lot of unfinished sections we are going to have. Well, we are going to have a lot of them, and none of them *finished*—at least not until the rush of the honey harvest is over. We do not want our honey finished on these colonies, for several reasons. One is that the time of our bees is too valuable just now to allow them to do work that can be done so much better in another way, after the rush of the honey harvest is over, and there is nothing else for the bees to do. Another reason is that these fifty colonies all have old brood-combs, which would spoil the cappings to our sections; and still another reason is that the crowding that is necessary for the perfect filling of the sections required for fancy honey would defeat our plans of swarm control, as this is one of the main features of our system.

You may paste this in your hat for future reference, that a hive full of capped honey is a swarm-breeder. With our system we do not allow very much capped honey in any part of our hives for any length of time. This, together with abundant ventilation and plenty of room in the supers in the shape of drawn foundation in sections, always placing the empty supers next to the brood-chamber, will, in our location, most effectually break up the combination of influences that produce swarming, and give us stronger colonies, and, consequently, a larger yield of surplus honey than can be obtained by any other method of swarm control that has yet come to our notice.

We will now consider our fifty feeding colonies that are going to finish off every one of our sections, capping them solid to the wood, and making every section a fancy one. We will first go to one of these feeding colonies that at this time contain two queens and

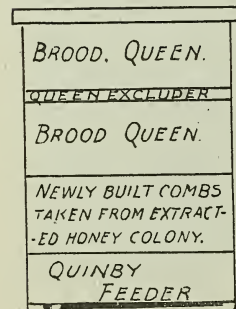


Fig. 4.—Feeding colony provided with a section of new combs.

placed on our extracting-colonies for this purpose, and let the hive back in place, now on the brood-section of new white combs, Fig. 4.

We will next prepare fifty bottom-boards where we want the colonies to stand, and, going to one of the feeding colonies having two queens, we will remove the top brood-section and queen, placing on one of the prepared bottom-boards; and, going back to the hive from which we took this brood-section, we will drive the bees down so as not to get the queen, and remove this brood-section also, placing it on the one that we removed first, and put on the cover.

Having the fifty feeding colonies all treated we will take a sort of inventory, and find that we have just made fifty colonies of bees, and that we have also fifty feeding colonies with one brood-section of new white combs from which no brood has yet hatched, and underneath the brood-section is a Quinby feeder which will be fully described under the head of "Feeders" and "Feeding back," in our next article. Each of these feeding colonies has a young vigorous queen that will hold this small brood-chamber for brood against any amount of heavy feeding, and will not allow it to become clogged with honey.

Having our feeding colonies ready we will next go to our comb-honey colonies and remove the top supers that are at this time

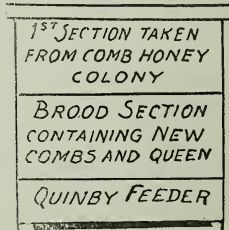


Fig. 5.—Feeding colony after putting on the first super of sections from the comb-honey colony.

as they are nearly ready to cap. We shall have to be on our guard and see that no honey is capped on our comb-honey colonies; for if any is capped we shall have to shave the caps off when we put them on our feeding colonies, or else the surface of the comb will be uneven when finished.

July 15.—The basswood-honey flow is now about over, and with it ends our honey harvest for 1906, so we will remove the supers from our extracting-colonies, using the escape-boards the same as we do in removing our comb-honey supers. With our hive-lifter we will quickly swing the supers up, placing on the brood-chamber an escape-board and let the supers back in place on the escape-board, and without any lifting. Having the escape-boards under the extracting-supers we will leave them until to-morrow morning, when the bees will all be out of the supers.

July 16.—We will with our hive-cart haul the extracting-supers into the extracting-room, which, in our case, is the cellar where

the honey will be extracted, and run into the feeding-tank from which it will be drawn out and put through the feeders under those fifty feeding colonies for the purpose of finishing our sections. We will begin extracting at once so as to get our bees at work in the feeders; for we do not want them to stop comb-building until our sections are finished. Some will, doubtless, think that this feeding back is a fussy job. Well, so is the feeding and caring for our 1200 chicks and our 350 laying hens; and if any of you are afraid of work you had better choose some other occupation than the bee and poultry business; however, it takes only a little time just at night to fill the feeders, and does not interfere with our other work.

The honey harvest is now practically ended, and the bees will continue to work on a few late-blooming trees for several days. Our scale hive showed a gain of only 2 lbs. yesterday. We will now remove all the section-supers from our comb-honey colonies, placing them on the feeding colonies without driving or molesting the bees. We want them to work right along in the supers until they are finished. Our supers are now all off, and it was just thirteen days from the time the first super was put on to the time the last one was removed.

Our next article will treat on feeding back and feeders.

To be continued.



WHY THE BEES BALLED THE QUEEN.

Will you please explain why the bees balled one of my queens and killed her when I opened the hive? The conditions were as follows:

I blew a little smoke in at the entrance, then kicked gently on the side of the hive to cause the bees to fill themselves, and in about five minutes I opened the top and proceeded to search for the queen in the usual way. When I came to the last frame, and before moving it, I found the queen balled. I withdrew the frame quickly, and sprinkled water on the ball and procured the queen, which I should have put into a cage but did not. Instead I placed her back on the frames, and the bees immediately killed her. This queen was purchased last fall or late in the summer. She raised a nice colony of bees, but they killed her a few days ago.

J. K. LIPPEN, Ph. C.

Battle Creek, Mich., May 20.

[It is strange but nevertheless true that bees will at times ball their own queen—one that perhaps has been in the hive for months

or years for that matter. The attack seems to be caused by the mere opening of the hive. In your case there was an unusual disturbance as you bumped the hive in addition to blowing smoke in at the entrance. But this smoking and bumping should not induce balling, and ordinarily does not do so. From the date of your letter we infer that there was a dearth of honey; and, what is more, the bees were running close on their supply of stores. Under such conditions bees are more apt to do unusual things than when a condition of prosperity exists. But we have seen just such balling as you describe, time and time again, and we have had various reports of it. If one could only *know* that some certain colony was "touchy" he would refrain from doing any thing to disturb them so that they would feel disposed to wreak vengeance on their poor queen rather than the big animal (man) that tore open their home.—Ed.]

KEEPING A NUCLEUS CONTENTED.

In the answer to my question, page 714, you say, "and, in addition, give the bees a frame of unsealed brood." Now, Swarthmore says, in his "Increase," "Never give brood to a newly formed colony until after the queen is safely introduced, lest the confined bees ball the queen as soon as she is run into the box."

I always like to follow directions to the letter; but, according to the above, I am just as wise as before reading "Increase," but will practice on home-bred queens after this, as I need to increase my colonies this summer. G. HERMAN PETERSON.

Deerwood, Minn.

[Swarthmore is correct in stating that the presence of brood makes the introduction of a queen more difficult, but there are other things to be considered in your case. For example, the weather this spring was very trying to bees. Genial weather is a necessity for operations of this kind. Your nucleus got discouraged, and a frame of brood would have put new life in it till conditions improved.—Ed.]

THE USE OF THE FLIGHT-HOLE IN THE CHAMBERS NON-SWARMING DEVICE.

I should like to ask whether J. E. Chambers still uses the flight-hole at the back-end of a dividing-board when using his non-swarming device, as described in GLEANINGS.

Millville, Pa.

J. R. BOGART.

[This question was sent direct to Mr. Chambers, who replies as follows:]

In answer to Mr. Bogart's inquiry, I will state that, as originally designed, it was intended to be used or not according to the manipulation practiced. I do not know whether the public so understood it, but it was intended to give the operator a choice of manipulations. For those who wished to use their old queens rather than to requeen with young ones reared in the parent colony, and to drain out quickly the entire force of

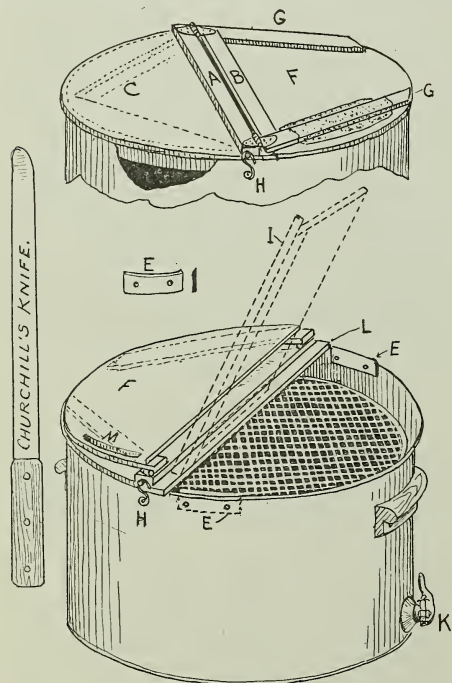
field bees from the hive or hives above, it is entirely unnecessary to use the flight-hole in the rear of the board. However, some of the youngest brood will perish for want of water unless, perchance, the combs are full of thin nectar, and this was one good reason for having the flight-hole, although the main reason will be shown later on. In my own practice I always requeen with young queens, putting the part of the colony containing the old queen above the board. This makes necessary a much longer division of the colony in order to give the young queen time to mate and begin laying; and, as will be readily seen, it was not desirable to draw away all of the field bees, for in that event the brood would perish for want of water; and for the lack of pollen and nurses the queen would stop laying entirely. Thus the flight-hole became a necessity. No doubt there were some who did not appreciate this difference.

J. E. C.

Vigo, Texas.

A NEW UNCAPPING CAN AND KNIFE.

The chief feature of my can is the cover that always serves as a protection from dirt and dust, and keeps wandering bees from too close an investigation. I have used this for several years in my bee-yard, and find it very useful and convenient. The upper view shows the cover as closed. C is the



heavy or permanent cover; near the center are two cleats, A and B, one on each lid, and at each end of cleat A are pins which engage the hook H and serve to hold the cover firm. These two covers are hinged together as shown.

When in use, the light or F cover is thrown entirely back, as shown in the lower cut; and when that is done it exposes the frame-rest L, which is simply a continuation of the cover C. The frame rests on L, with the bottom-bar toward the operator. As the frame now stands, leaning a little forward, the back of the frame is against the cleat A, so that it can not slip. The cappings fall directly into the can. The can can be supplied with a screen or not, as the operator prefers.

E is a four-inch piece of steel, made from an old scythe, and riveted to the inside of the can, convenient to clean the knife, and directly under the hand of the operator. This blade stands above the rim of the can only sufficiently high to serve its purpose; and when the cover is down, the blade is enclosed in the slot M. K is the usual honey-gate.

The uncapping-can may be provided with legs, or arranged on some suitable stand.

I think my knife is far ahead of the ones that are ordinarily used. It is thin, and yet sufficiently rigid to stand any pressure needed, and is provided with an oval (almost flat) handle, firmly riveted. The tip end of this knife is slightly bent, and I find this feature very convenient in getting into small corners or depressions. E. P. CHURCHILL.

Hallowell, Me.

A BAD SHOWING FOR GOLDEN ITALIANS.

Your letter, inquiring how the golden Italian bees wintered in my yards as compared with the Caucasians and the Banats, came to hand this mail. I would not have made my experience public at this time if you had not spoken of the experience of others. But the experience of several persons in one year may have the same force as the experience of one person running through several years, so I will tell you my present sad experience. My father, from whom I learned about all I know of bee-keeping, tried cellar wintering a number of times, and always made a complete failure of it; so from the time I came into possession of the home apiary through my father's death until this last winter I never tried cellar wintering. I have a cellar now that seems to be what most advocates of cellar wintering think about right. It is dry, has good ventilation, and the thermometer stands quite constant at 45°. Into this cellar I placed twenty colonies of Banat bees last November, well provisioned and in all-round good shape. All of them were dead by the first of January. My only explanation is that we are in the natural-gas country, and there is always a slight odor of escaping gas in our cellar, and possibly the bees could not stand it.

In my five out-yards I had about 200 golden Italians, 30 Caucasians, and 40 Banats. In two yards every golden Italian colony was dead by April 1; in the other yards more than half of the goldens were dead, and a few dwindled to nothing in May, so that, by May 1, about 85 per cent of my golden Italians had perished. I had placed a few Cau-

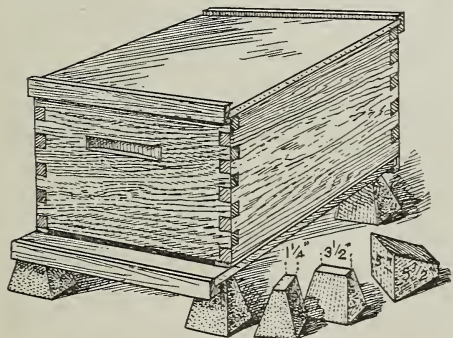
casians and a few Banats in each yard to compare wintering qualities. Of all the Banats, one colony died. It had been very weak in the fall, and there was not a double handful of dead bees. Of all the Caucasians, four died, and they had been weak in the fall; so I could not be sure that there was any difference in the wintering qualities of the Banats and the common Caucasians. But there was a remarkable difference between these races and the golden Italians, and it was in favor of the dark races. I love beautiful bees, but with last winter's experience I am tempted to give up the golden bees. The Banats (or as I have been calling them Banat Caucasians) are also a very pretty bee, and I have about transferred my affections to that race.

Emporium, Pa.

N. E. CLEAVER.

CONCRETE CORNER-BLOCKS FOR HIVE-STANDS.

I have been making some cement hive-stands for my own use. The blocks are made 5 in. square on the bottom, $5\frac{1}{4}$ in. high. The top, or where the hive rests, is 3 in. by $1\frac{1}{4}$. These cost me three cents apiece, are much cheaper than wooden stands, and are practically indestructible, besides presenting a very neat appearance. You will see that the hive rests upon such a small surface that there is small chance for dampness to collect to rot the bottom-board.



CONCRETE HIVE-STANDS.

Since I have used these hive-stands they have given me such satisfaction that I would not return to wooden stands, even for the few hives I have; and it seems to me they would be economical, even for the large apiary, as they can be made by any one who can get cement and gravel.

Brattleboro, Vt.

CARL F. CAIN.

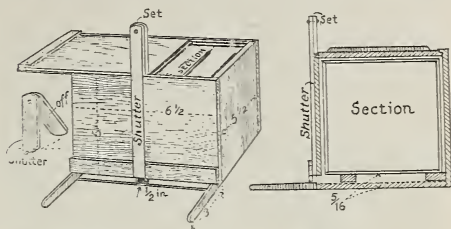
[The concrete-block scheme here shown is perfectly feasible and good. The form for making the little "pyramid" would not cost much; but four common half-bricks would be almost as good and much cheaper.—ED.]

AN ENTRANCE FEEDER FOR GETTING UNFINISHED SECTIONS CLEANED UP.

On page 1130, 1906, is an article from the Rev. W. L. Palfornon on disposing of unfin-

ished sections; and with regard to the mentioned contrivance and *your* footnote I beg to say:

Last year I made a few such boxes, and have used them, and also now am using them



AN ENTRANCE BOX FOR FEEDING BACK UNFINISHED SECTIONS.

very successfully for fall feeding of weak colonies. There is with my feeder boxes no difficulty whatever in attaching them to the entrances, for I simply have made them exactly the same way as the Boardman feeder, i. e., with projections, which, in my feeder, extend $2\frac{1}{4}$ inches into the entrance of the hive. The material used is of old shipping-cases. My feeders are made for only three sections. There is a bee-space underneath, but not on top or sides of sections. The communication from hive to feeder is just $\frac{1}{4} \times \frac{1}{4}$ inch, and there is a sliding shutter which is operated from the top. To hold it open, there is a little swinging cleat, which, when in position with the shutter, is "set," as I call it. When swung sidewise it is off.

DR. PHIL. MAX BOELTE.

Valley Center, Cal.

CRY HEARD FROM DRONES THAT WERE BEING DESTROYED.

A curious incident occurred among my bees about Sept. 1st, last. I was out near my hives one day when I heard a curious mournful and pitiful cry coming from one of the hives, sounding like "woah, woah, woo-oah," so loud that it could be heard thirty or forty feet away. Upon approaching the hive I discovered the workers dragging out the drones and tearing them limb from limb. This explains the distressing sounds, which kept up for perhaps ten or fifteen minutes.

J. G. RATCLIFFE.

Waukon, Iowa.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES; TWO LAYING QUEENS IN A HIVE.

I put six of my weakest colonies on top of my strongest ones. There was no hostility. Every thing went all right for a few days, but the queens on top gradually stopped laying and disappeared. The bees seemed to leave the upper queen, and go below and stay there.

When I read Mr. Alexander's article on page 474, I didn't believe it at first; but I finally decided to experiment with some old queens that I had wanted to supersede. I put three in one hive and two in another a

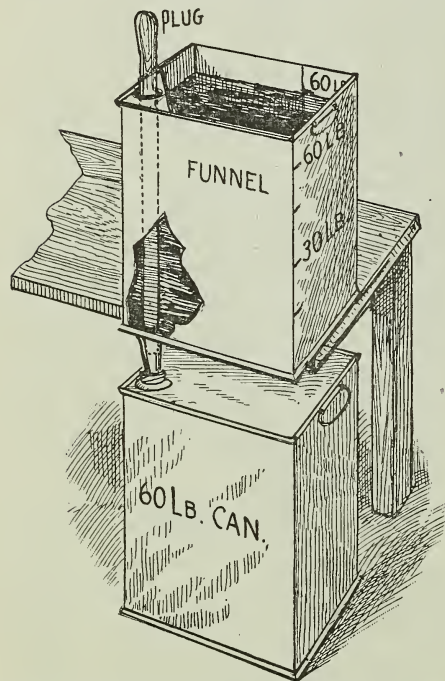
month ago, and they are all right yet. I take a look every day or two to see how they like it, and often see two queens on the same side of a frame, sometimes within an inch of each other.

T. J. LANDRUM.

Roswell, N. Mex., May 21.

HOW TO FILL 60-LB. CANS WITHOUT WATCHING OR RUNNING THEM OVER; A SIMPLE AND PRACTICABLE ARRANGEMENT.

I never had the patience to fill cans by depending upon the scales to tell when they were full, and soon adopted the following



plan: I made a sort of square funnel out of a 60 lb. can. This when filled to a certain point holds just 60 lbs., or the capacity of the can to be filled. By removing the bottom from a 60-lb. can, and soldering a cone-shaped pipe over the opening on the other end, said pipe small enough so it will enter the screw-top opening of the can to be filled, we get a filling can, or funnel, just right for the purpose. Then I provide a plug to close the opening in the funnel, making it about 6 inches longer than the funnel is deep, which extends up through the honey, and gives room to take hold of.

When in use the opening is stopped with the plug, and the inverted can or funnel filled with honey to the 60-lb. mark. When the plug is removed the lower can fills itself just right.

Inasmuch as my honey-house is on a level I run the honey from the extractor in pails, which, when full, are emptied into a barrel or tank, properly strained, from which I

draw the honey in pails, and from which to fill the 60-lb. funnel.

F. H. CYRENIUS.

Oswego, N. Y.

[The arrangement here shown is very simple and unique. Any tinner, if he be given a square can, will be able to make up a funnel from the description and sketch.—ED.]

FANCY COMB HONEY WITHOUT SEPARATORS.

During the past season one of my colonies made 162 sections of honey that weighed 163 pounds. These were in six supers holding 27 sections, each of the $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{4}$ two-bee-way style. There was not a single unfinished section, and all the combs were straight, although I used no separators. Besides this, I had two colonies that gave seven supers each, and some others that made 150 pounds. A good many made only one super. All this honey was taken off in July, as there is no surplus from the fall flow.

WILLIAM G. SNODGRASS.

Montrose, Mo., Jan. 11.

[While separators with the ordinary sections may be dispensed with some seasons, and with some colonies, it would be bad policy to attempt to run a whole apiary on that plan year after year. At one time, many bee-keepers produced comb honey without separators; but in later years, most of them have abandoned the practice, and it is well that they did, as such honey will not crate and ship as well as separated honey.—ED.]

HOW TO TRACE ROBBERS.

Referring to p. 1416, Vol. 24, I would say that the following plan may be recommended to Dr. Miller for tracking robbers. One September I was suddenly troubled with robbing, which is always suggestive of careless management; and as my stocks were well behaved I felt sure some neighboring apiary must be guilty. I placed an empty hive in the yard, with a honey-comb inside, and a trap entrance (the Porter bee-escape). In the evening, when flying was over, I removed the top of the trap-hive and some hundreds of bees issued from it. They all went into one of my own hives, but it was a stock composed of spare combs occupied by driven bees from Yorkshire, which I had received ten days before, and had fed up for the winter. No other stock joined in the picking and stealing, so I presume the burglars had taken to bad ways in their last location.

A SCOTTISH READER.

[The foregoing is an excellent plan for tracing down the robbers.

It very often happens that only one colony is responsible for all the robbing, especially when it first begins. In the case above mentioned we would advise taking the guilty colony and putting it down cellar for a week until it forgets its misdeeds, or, mayhap, repents. If when returned, it refuses to be good, remove it to a distance of a couple of miles, and in the meantime requeen.—ED.]



OUR HOMES

by A. I. ROOT

Mr. Root:—July GLEANINGS has just arrived, and I note what you had to say to Wm. A. Scheiffer, and I will say he voices my sentiments in regard to bee culture and religion—separate them. I have kept bees for half a century, and have never found a place where I could use any of that orthodox nonsense called religion. One would think by reading your article that you stopped in the middle of the road some fifty years ago, while the procession had kept right on. You are certainly fifty years behind the times. Prohibition is not temperance, but the worst kind of intemperance. Where did you get the right to say whether I should take a drink or not? Where did you get *any* right that I have not? You ought to have lived in Salem, Mass., 200 years ago. They were just your caliber. Did you not know that the Christian religion was dying just as fast as it could? Your churches are partly filled Sundays with well-meaning children and ignorant men. Very few intelligent men go to church any more. Of course, you have a perfect right to print what you please, and under present laws I have the right to reject or accept as I see fit; and I hope for the benefit of generations yet unborn that no changes will be made in these rights. I suppose you have heard the story of the two men who were going down the street. One said to the other,

"Let's take a drink."

The other replied, "No, I don't drink."

"Well, take a smoke."

"No, I do not smoke."

"Well, then, eat some hay."

"No, I don't eat hay."

"Well, good by then. You are not a fit companion for man or beast."

I am not a very good hand to put my thoughts on paper; but if it should be my good luck to meet you at some future time we will have a friendly chat on the subject. I think I can convince you that some very good people differ with you. Give us the latest on bees and chickens, if you like, and let religion and prohibition go to the garret with the bats and owls and other antiquities. Wishing you health and happiness I remain respectfully yours,

Henderson Mich.

WM. KOHLMAYER.

Well, my good friend K., even if we do see things so very differently I think I can thank you for the very kind and genial way in which you take me to task. Now, I do not know but I shall have to agree with you that *somebody* has stopped in the middle of the road while the "procession has gone on" for the last fifty years; and I think I shall leave it to our readers to judge whether *you* are the one who kept still while the procession went on or whether it was your old friend A. I. R. By the way, let me tell you that your letter came in a great heap of applications for the Stainless Flag; and in this heap of letters and postal cards were some of the kindest and most encouraging words I ever received for my Home papers. Your letter was the *only* one in the lot that objected; and it is the only one I have received since our last issue, with one exception. The applications for the Stainless Flag have gone away up into the thousands, and kind words accompany almost every one of them. Now, don't you think that the procession you alluded to, that is marching on continually, embodies the temperance sentiment that is now sweeping all over our land? The papers are so full of it that you certainly must know

what is going on. A few years ago there was a sort of political prohibition (some of the friends will excuse me if I say third-party prohibition) that might have been somewhat open to your charge of intemperance. Yes, many of the good friends threw it into my teeth that I did not vote as I prayed; but may God be praised, the Prohibition party and the Anti-saloon League and the Christian churches are now getting into line and working with such harmony of purpose that nothing can stand before us.

Friend K., I have never assumed the right to say what you shall drink in your own home, providing said drink does not make you crazy and induce you to abuse your own wife and children. If you do that, I hope every neighbor you have will interfere. In fact, if I am right you would interfere yourself if a neighbor would abuse his children because he was crazy with drink. The papers tell you about these things, and so we need not discuss it. The Anti-saloon League does not interfere or quarrel with any man who keeps liquors in his own home and drinks them in moderation. Of course, we reason and remonstrate with him, but we do not undertake to forbid it by law.

"Where do you get any right that I have not?" you ask. Surely, friend K., I have never thought nor presumed that I had any right that you have not; but where people differ as you and I do, is it not the sentiment of our country that the majority shall rule? Well, all the Anti-saloon League asks is that the majority of voters be permitted to decide whether a town or community shall keep open saloons or not. That is right, is it not? Now, my good friend, towns, townships, cities, counties, and States all around us are voting on this question. Some go wet and some go dry. Let us draw a line in your neighborhood, or any other neighborhood, and let all the friends of the saloon stand on one side of that line and all opposed to it on the other. Which crowd do you wish to be with? You can look the crowd over just as well as I can. On one side we have all temperate people, our ministers, professors in our colleges, our teachers, and all who love righteousness and hate iniquity; and, of course, all the women and children will stand with them. I declare I almost dread to mention the class on the other side. Of course, you will have all the drinking men, all the gamblers, all the liquor-dealers, all the criminals, highway robbers, pickpockets, midnight thieves, etc. Can you consent, after carefully looking over both crowds, to go over and stand with the latter class? If you have a wife and children (and I hope you have) may God forbid that you should take any such steps.

But in discussing this matter of prohibition you overlook the object of it entirely. You may have as good a right to take morphine as I; but if any druggist in Henderson should presume to sell it promiscuously, as he might tartaric acid, that druggist would be immediately confronted with prohibition of a very stringent character. You may fire your pistol promiscuously on the wide fields of Illi-

nois or in the dense woods of Michigan, but not in the streets of Henderson; neither can you store up dynamite in your cellar in Henderson. Here you have prohibition again, and it prohibits. Now just apply this principle to the sale of intoxicants and you have prohibition for another purpose. It may not make men temperate, but it is a mighty factor in preventing men from helping others to become intemperate. If you will take a map of the United States of fifty years ago and mark on it all the area under prohibition then, and then mark a new map in a similar way, you will soon see that you yourself, like the old map, are just fifty years behind the head of the procession.

In regard to the witchcraft 200 years ago, if you have been reading GLEANINGS you are doubtless aware that I have all my life been as vehement against superstition, signs, and notions, as almost any other living writer. We both thank God that witchcraft and all like superstitions, under the searchlight of modern scientific investigation, are being rapidly relegated to the past.

I think I shall have to confess that there is at least some consistency in what you say about intelligent *men* not going to church; and it pains me, my good friend K., to think that you yourself are possibly one of that class. Now please pardon me if I tell you I fear it is owing to this very fact—that is, that many of our men and women stay away from church (or, if you choose, do not attend church and stand by it as much as they did some fifty years ago) I fear it is owing to this very fact that we are having so much bribery, graft, and stealing, of not only hundreds but thousands and sometimes *millions of dollars*. If the men who do these things had held fast to the religion of their fathers—the religion of olden times if you choose to put it so—they could not have been tempted by Satan to ruin their fellow-men as they are doing, as we see by the daily papers. Yes, I know there are a *few* men who continue to go to church—may be Sunday-school superintendents—just to keep up appearances. Jesus had one hypocrite in his little band of twelve; and from that time on there has been here and there a man who went to church and pretended to piety just in order to find a better chance to get hold of the bag that holds the money that belongs to the crowd. May God help us all to weed out hypocrites, and put them where they belong.

Yes, in one sense I have a right to print what I please; but unless I take great care in what I select for print and in what I dictate I shall not have the standing and backing that I have now. If you could read the postals and letters that came in the same mail with yours I think you would decide that I am marching with a pretty *good-sized* "procession" after all. I shall be exceedingly glad to meet you and have a friendly chat with you as you suggest; and if in my trips through Michigan I ever come near you I certainly will stop. I am glad you like my talks on bees and chickens; but I am surprised that so good a man as you seem to

think that religion—that is, the genuine religion that teaches a man to love his neighbor as himself—should ever need relegating to the garret together with the bats and owls.

Our good pastor, who, I am glad to say, is a special friend of mine, happened to be in our office when your letter was lying on my table. We together had a good laugh over it; and by my request he gave me a copy of what he has written you, which I append below.

Mr. William Kohlmeier:—I was in the office of Mr. A. I. Root the other day when he was looking over his mail and came to your letter on the "relation of bees to religion." Because I hold views similar to those he entertains, he read me your letter and asked what I thought of it. I asked him for the privilege of replying to it. If you will kindly give me a little of your time I think I can show you that you are laboring under a misapprehension.

I certainly agree with you when you say that "prohibition is not temperance, but sometimes the greatest intemperance." The advocates of any reform have some among them which go a little too far, and sometimes do the unwise and intemperate thing. You ask, "Where did you get the right to say I should or should not take a drink?" That is precisely, as I understand Mr. Root, what he does *not* say. This is a free country, and every man can do just what he pleases so long as it does not limit the rights of others. But it certainly ought to be the privilege of every man to try to persuade any one that his philosophy of life will give the greatest happiness to the greatest number, if that man believes it. That, I take, is the position taken in GLEANINGS. This whole agitation on the drink question might be quickly solved if it affected only the men who drink; but the facts are that the people who suffer most from it are those who do not drink, such as wives, mothers, and even the public who oftentimes unwillingly suffer. If you will tell us how to confine the effects of liquor to those who want to use it we will promise you that the agitation will be kept out of journals devoted to other subjects.

Your statement that Mr. Root was fifty years behind the times because he paid attention to the Christian religion, and that "*very few intelligent men go to church any more*," attracted my attention. I got to thinking of that coming home, and remembered that a man whom I had heard of, who was a graduate of Harvard College, and an author of some repute, and quite popular with some people, and bears the name of Teddy Roosevelt, is quite a regular attendant of the church. I remember that the world now looks upon Lord Kelvin as the leading scientist in all the universe, and he is a regular attendant and ardent devotee of his church. Need I mention that there is not a president of any college, of any size, that is not a church-member, and in most cases even a minister, in this country? Almost any man of prominence in the public life of your State is and has been for years connected with some form of religion. Florence Nightingale, Gladstone, Balfour, Kepler, Newton, Faraday, and a list of such worthies, have their splendid illustration in the present who are not deists nor agnostics, but open and ardent Christians.

You say a man is fifty years behind the times if he pays attention to religion. May I ask you a question? Is there a God? Is there a Providence that is large enough to take care of the stars and tender enough to care for the fallen sparrow? What is right? Who is my neighbor? What is the worth of a child? Can a man who has made a great mistake be made to feel right and in harmony with the universe, and start anew? Is character a permanent thing? Is there any thing after the grave? Now, my question is this: Is a subject that discusses themes of this kind behind the times? Do you think these subjects are antiquities, and fit only for the garret?

I am not going to say any thing of the numerical strength of Christianity, because some Christians are not very good ones; but after making all due allowance for these, I think you will find, even on a superficial examination, that the essential things for which Christianity stands were never so widely emphasized and effective as they are to-day. There were never so many prominent and intelligent men in this country who were practicing their religion as at present.

I appreciate the good nature of your letter; but really, my friend, I think you are wholly mistaken, and

that your views are much more in keeping with their surroundings when they are filed away where the bats and owls abide than those that you want to put there. However, it is a free country, and you are privileged to think as you like.

Medina, Ohio, July 6, 1907.

Yours truly,
JESSE HILL.

In order that our readers may get a glimpse of some of the *encouraging words* I get all along life's pathway I give one of them below:

Dear Mr. Root:—I have wanted to write to you for a long time; and after reading the last two GLEANINGS I can keep still no longer. I refer to those two letters about your writings in your journal. I have this to say: If your writings stop, my subscription expires right then. I always turn to your writings first, and devour every word; and the good you have done me alone you will never know. It will certainly add one star to your crown. All you write just suits me about religion, health, babies, chickens, and all. I should be afraid to say how much benefit you have been to me; and your prayer, "Lord, help," has become mine also. I have often wished I could see you, but I know I never shall in this world. I hope you will keep on in your good work. If there were more such papers as GLEANINGS and *Farm Journal* this would be a better world. I could not get along without either. I haven't had a doctor in the house since I read what you wrote about lemons being used as medicine. I get lemons instead, and they have answered every purpose so far. Please forgive me for taking up your time, and for writing to you; but I wanted you to know how much good you had done in one little home away down here in North Carolina. Your name is a household word with us.

MRS. L. L. UMSTEAD.

Stagville, N. C., July 10.



CUCUMBERS AND OTHER TENDER STUFF UNDER CLOTH, IN FLORIDA.

In this Florida land we have a climate that leads us to fear not so much freeze or frost as cold winds which often do quite as much damage, and cause a great deal of vegetation to go to the wall. There is one shed here entirely of cloth, which I think would answer the purpose if the parties only knew how to manage it. This structure was built for raising cucumbers, but has so far been a failure. This first effort, or winter before last, the cloths were left off and the young plants were hurt by frost so much they were none in advance of the ones outside. The effort last winter was also a failure because they failed to get a stand, and they just gave the case up and never raised any thing on the ground, but took the cloths in out of the weather, and it now stands as above described.

There are a few things I wish to know that I think you could give. 1. Is there any way of pollinizing the bloom under the cloth? If so, how is it accomplished? I planted half an acre, in open ground, of cucumbers Jan. 22, this year, and got a fine stand. They grew nicely. I kept the frost off by setting up 12-inch boards on the north side of the rows, and leaned them to the south. This gave the plants a sun bath every day, and soon they led the whole neighborhood on "cukes;" but I had to lift the boards when they began to vine; but later the cold winds and blowing rains whipped the vines until they were nearly as bad off as if frosted. They gave off an odor just as if they had been frosted. The vines withered and died until about half were gone; then they soon revived (that is, what were left), and began to bear nicely, when still another wind did them quite as much harm as the first. Upon the whole the yield was good under the circumstances, and brought nearly \$300. Now, I think if there were a way to shelter those vines they could be made to pay large dividends. Any thing you would give or

recommend, or any book on the above that would treat on this subject, would be gladly received.

Sanford, Fla.

J. W. HUNTER.

Friend H., you have struck on a matter that interests me greatly just now. Down on our island we had exactly the trouble you describe. In fact, we had a fine lot of cucumber-vines that had just begun to bear; but the hard winds and the low temperature used them up almost the same as a frost, although I have never seen any real frost on our island. My experiments were mostly with stuff such as flowers near the house. Every time I would get a coleus to growing nicely, and looking really handsome, then a cold wind would whip it about and chill it so it would behave almost as if it had been hurt by a light frost. After a while it would recover and then have the same treatment over again.

For an experiment I made a little bed that I called my Florida greenhouse, of cheap cotton cloth stretched over frames to protect them from the wind. This answered beautifully. They could be taken off and placed up against the house in less than a minute; and the same frames were used to protect my young chickens from the cold winds while they had the full benefit of the sun. Of course, it requires some manipulation in order to make a success of the cloth covering, whether it is to protect tender stuff from frost and wind, or the sun when it is too hot. The cloth covering must be made so it can be very quickly put over the plants and taken off. It should be arranged so that one person can with a little care and labor put on the cloth or take it off. Unless you have it arranged in this way the plants will be exposed when they should be covered; and, again, they will be covered when they should be exposed to the genial sunshine or to a summer shower.

Now, our tomato-book, it seems to me, solves this whole problem. I do not believe there is any other way in the world by which a cloth covering can be arranged so as to be secure from being blown off by the wind, and at the same time be easily manipulated by one person. I allude to the plan of winding the cloth rolled up on poles 100 to 200 feet long, the rafters across the bed just near enough to keep the cloth off the plants. Friend Day lately informed me that they are now growing cucumbers for the northern markets under the same cloth frames that were constructed primarily for growing tomato-plants. I know there are large areas covered with cloth in different parts of Florida, and I visited several such places. But the difficulty of having the cloth in the way when it should be off, and off when it should be on, is, so far as I can learn, the great problem. I am glad to know that you succeeded fairly well after all the unfavorable weather of last winter; and I feel sure that you can make a complete success with the cloth-covered frames as described in our tomato-book. I think that, in your locality, there will be plenty of days that would permit the bees and other insects to fertilize your

cucumbers perfectly. Most of the cucumber-houses here in the North have one or more hives of bees inside of the building to do the fertilizing. It is true it can be done by hand with a camel's-hair pencil; but the bees do it so much better and cheaper that I think bees are now almost universally employed by all growers of cucumbers. See page 509 of our issue for April 15, 1906, where this matter is fully described and illustrated.

SWEET CLOVER FOR PIGS AND LAMBS.

The evidences of the value of sweet clover for many purposes continue to accumulate. The latest pronouncement in its favor is by the editor of *The Farm Press* who has recently paid a visit to the celebrated San Luis Valley in Colorado where are raised the finest hogs and lambs in the United States. What he saw is calculated to cause the people who class sweet clover as a "weed" to sit up and take notice. Please note carefully what he says.

Alfalfa has an altitude limit which interferes with its cultivation in some places, as it does not succeed well above 6000 feet; but alfalfa has a first cousin, known all over the United States by the name of sweet clover, and these high-altitude farmers have found out that sweet clover doesn't discriminate between different altitudes. One man declared that sweet clover will grow way up to the timber-line and it will make good feed too, if properly managed.

Sweet clover gets very woody when it gets old, but these men pasture it down, and when it gets the start on the hogs they put the mowing-machine on with the finger-board tilted up and cut it back to three or four inches high. This gives it a fresh start, and the pigs fatten on the young and tender growth. The San Luis Valley seems to have taken the lead in lamb feeding. Seven years ago an experiment was tried in feeding 600; the experiment was successful, and the next year about 1200 were fed. These were increased the third year to 12,000, and every year thereafter until 1905, when the number was estimated at 540,000; but this proved too many, at least the market at that time was not sufficient to absorb such a great quantity at paying prices and some of the feeders who didn't understand the business made a failure of it. The past season about 320,000 were fed and marketed with success.

The combination of alfalfa or sweet clover with peas works well with breeding hogs, because the little pigs, as soon as they are able to eat, get the kind of feed that is best for them.

It may be explained these hogs and lambs are raised entirely on peas, alfalfa, and sweet clover, though in some cases beet pulp is added. Evidently the sunny San Luis Valley farmers know the true value of sweet clover and how to use it. There is a great deal in knowing how.

SWEET CLOVER; WHAT IT HAS DONE FOR KING ISLAND.

We take the following from a newspaper clipping furnished us by Mr. Herbert J. Rumsey, of Boronia, New South Wales, Australia. If there are any farmers or other people left who insist that sweet clover is a noxious weed they had better read and ponder.

Many years ago, it appears, a Dutch ship was wrecked off the island coast, and some of the sailors' mattresses were washed ashore. These mattresses were stuffed with what is locally known now as mellilot grass, and this grass contained a fair amount of seed, which, falling on the sandy beaches, threw up a few tufts, and in the course of years gradually spread

until it now covers nearly the whole of the coastal sandy areas.

Strictly speaking, it is not a grass at all. It is a yellow-flowered clover, known botanically as *Mellilotus officinalis*, and a half-brother of *Mellilotus alba*, commonly called Bokhara clover. Furthermore, being a leguminous plant it absorbs a certain amount of nitrogen from the atmosphere and transfers it to the soil. This remark may appear slightly superfluous to many readers, but it strikes the keynote of Mr. Macdougall's remarks on the subject. He said in effect:

The fertilizing power of this grass is simply wonderful. It has transformed King Island from an island of useless sand-dunes into one of the best grazing districts of the commonwealth. This wonderful grass, sown on raw white beach sand, has in the course of five years changed the character of it until at the end of that time it has become a dark-brown color in some places almost black; and its value as soil has increased 100 per cent. Every year it is improving the value of the land and gives increasing quantities of feed. Now the export trade of King Island consists of fat cattle, dairy produce, horses, etc., and by the use of the clover extensively used is the reason. The King Island fat cattle always realize the best prices in the Tasmanian markets, to which the first shipments are made in August, and continue till February and March in each year, over 1300 head of fat cattle being sent away this last season. The King Island co-operative Butter Factory turns out butter of the highest standard, a good quantity of which is exported to England, and is always among those brands that realize the highest prices. And this butter is made from cows whose principal food is mellilot. Sheep and horses also do remarkably well on it. Sheep have been killed weighing up to 120 lbs., and the two-year-old horses of King Island are as big as the three-year-olds of Tasmania.

Mellilot is very similar to lucerne in appearance, and grows to an average height of 3 ft. It has often grown to 8 ft. high on heavy ash, and is the better class of soil in the interior of the island. The average crop of hay is two tons to the acre, often running as high as three tons when Algerian oats are sown with it. Cattle, horses, and, in fact, all kinds of stock, are very fond of the hay, which has a beautiful aroma. When cut green for ensilage it yields about five tons at the rate of 10 to 15 lbs. per acre.

I do not wish to boom this as the best grass there is, because I know well enough it is not so. For instance, I certainly would not advise one to discard clover, etc., for mellilot; but what I do claim is that for any one who has poor sandy country lying idle, this is the grass; for it not only gives you a large quantity of good feed, but is each year improving the quality of the soil until it is sufficiently rich to allow it to grow something better. For instance, there are paddocks of lucerne growing on King Island which would not be there now if the mellilot had not improved the ground sufficiently to allow it to do well.

Another good point is the ease with which this grass is grown. The best way is to burn off the paddock. If scrub, it should be fallen about six weeks or two months before, and immediately after the fire sow the seed at the rate of 10 to 15 lbs. per acre. The sooner after the fire the better. It likes to be sown in hot ashes. The fire germinates the seed more quickly than when unburnt. Mellilot starts to spring from March to May, and keeps green right through to February, when it dies off, and is burned off again. It should be burned off every year until well established. It is an abundant seeder, and cattle and horses rapidly spread the seed in manure. It requires seeding only once, of course. The grazing capacity of mellilot from September to January (five months) is a treat to the acre. It is somewhat peculiar of taste; but when cattle get used to it they become very fond of it—especially so when made into hay. This mellilot grass is grown a wonderful plant; and if given a decent show it would make a lot of what is at present useless sand become useful grazing country; and the seed, not being expensive, might easily be given a trial. Dr. Cherry, of the Victorian Agricultural Department, speaks very highly of this grass, and it is also strongly recommended by the Tasmanian agricultural experts for green manuring.

King Island is this year earlier with grass than any of the districts I saw when travelling through Gippsland and the western districts of Victoria; also South Australia as far as Adelaide, and also New South Wales. At the end of March we had 4 in. of young grass, and at present it is about 10 inches. Drought is no trouble, and season after season regular feed is sure that, if given a show, a lot of raw sandy patches on the coast of New South Wales could be made far more profitable than at present.

DANDELIONS FOR GREENS, ETC.

Mr. Root:—In regard to dandelions, here in New England they are sold in all our towns and villages during the spring season at good prices, probably averaging 25 cents a peck (of 3 to 4 lbs.) for the season. Large quantities are sold—mostly the cultivated varieties in their natural state. The growing is exceedingly profitable—\$500 to \$600 per acre, so I am told. In our family, to have them the whole year we salt them down in a keg. First prepare them for cooking, then put them in the keg with plenty of rock salt. They will keep all right that way. When wanted for use they are freshened in water and then boiled. We find them exceedingly healthful, and, when served with other vegetables in winter, very tasty. We have no trouble in "exterminating" a ten-gallon keg of them during our seven months of winter.

Canaan, N. H., June 22. JOHN S. HYDE.

THE MAPLE-SYRUP BUSINESS IN OHIO.

A clipping sent us contains the following:

According to the last United States Government Census, Ohio produced 950,000 gallons of maple syrup out of a total of two million gallons produced.

We were well aware that Ohio does a big business in producing maple syrup, and that it is equal to any produced in the world; but I did not know before that our State came so near producing half of the product of the entire United States; and, thanks to our recent pure-food laws, those who produce pure, honest, first-class syrup are going to have a better chance than they ever had before. If the above clipping is a mistake, will somebody who is competent give us the truth in regard to the matter? My impression is there is no more *wholesome* sugar made in the world than that which comes from the maple-tree.

THE \$10 SECRET FOR PICKING OUT A LAYING HEN.

One of our subscribers who is in possession of this secret, even though he has signed a contract not to divulge it has seen fit to tell me this much. He says he can not understand it, because he is not an expert in poultry matters. The information is, therefore, of no use to him. From the advertising circulars submitted it looks very much as if the owners of the \$10 secret had hold of something valuable in regard to sorting out profitable hens. But even if this were true it is a poor sort of way to benefit your fellow-men—selling them a secret and exacting a written promise not to divulge, etc. Every new discovery of any value along this or similar lines will soon be public property, notwithstanding the precaution; and in the majority of cases, dear friends, you will find the information is *already* more or less public property. It is against the spirit of the age and the spirit of our American institutions to sell secrets. Let the discoverer make known his discoveries through a fair-sized book sold at a reasonable price, and both he and his customers will get their reward.

PARCELS POST; EXPRESS COMPANIES, ETC.

A few days ago we received by express two Rhode Island pullets from Walter Sherman, Newport, R. I. The express charges on the two "chickens" were \$1.93—not two chickens, however, after all, for one of them was killed by poking its head through the wooden slats nailed across the heavy grocery-box. The \$1.93 might have been considerably less had the shipper used a light shipping-crate weighing perhaps only a fourth as much as the big heavy box he put them in; and had this light shipping-coop been made of the right kind of wire cloth or netting so the pullet could not have poked her head through we might have *two* chickens now instead of one. I wrote to Mr. Sherman about his way of shipping fowls, and then investigated in regard to the express charges. The report

came back that it was all right, for there was an extra rate on *breeding*-fowls. They said if I would make a statement that the chickens were *not* to be used as breeders I might get some rebate; but I could not do that and continue to write the Home papers. I did not ask the express company to pay for the dead chicken, because I thought it was the fault of the shipper and not theirs. But I *did* feel that \$1.93 was a pretty big price for one chicken, and not by *any means* a good-looking one. Friend Sherman says, however, he will make it all right, and use better shipping-crates in the future.

Now, friends, we have all been sorely tried and vexed for years past in having to pay more express charges on a thing than it was worth—sometimes two or three times over; but the express companies have all along claimed they could not afford to carry our traps any cheaper. Just a few months ago there was a big row among the florists, especially in the East, because the express companies had increased the rates on their stuff. They said they could not "make a living" at their previous prices, and I think some of the florists and gardeners have felt also as if they could not make a living. Well, just now the papers are full of a recent revelation in regard to the express companies' methods; in fact, we are having a great big search-light turned in on an enormous graft which has been reaching directly into the pockets of our working people. Read the following,* which we clip from the *Rural New-Yorker* for July 6:

Blight and other diseases of the vine have driven thousands of melon-growers out of business. Many sections where in former years melon-growing was a leading industry now barely produce enough for home consumption. The Adams Express Company has just cut up a "melon" which shows that blight and downy mildew have no terrors for them! They are able to spray the crops with dimes and dollars taken out of the public. The Adams Express Company is supposed to have a stock capital of \$12,000,000. Up to 1898 it paid eight per cent interest. It then had sufficient earnings to issue gratis to stockholders \$3,203,000 worth of four-per-cent bonds. Now, besides paying 10-per-cent dividends the company issues out of its earnings \$24,000,000 more of these bonds, or 200 per cent on its capital stock. Surely there is nothing sickly about that "melon" for those who hold stock in the Adams Express Company! We should remember, however, that every cent of this \$36,000,000 came out of the people in small sums paid for carrying express packages. People have wondered why this great surplus was distributed in this way. The *New York Evening Post* gives this, among other reasons:

"One reason why the 200-per-cent dividend was declared at this time was that, under the Hepburn Rate law, the Adams Express Company, for the first time in its history, would be forced to make a statement of its affairs. Up to the present time none of the express companies has ever published a statement of earnings, liabilities, or assets. In fact, there is only one copy of the Adams Express Company's charter, and that is kept locked up in a safe. When the shares were listed on the Stock Exchange it was not customary to demand a copy of the charter, together with statements of earnings, assets, liabilities, mortgages, etc."

Under the new law the express company will be treated as a "common carrier"—though it seems to have uncommon capacity for carrying money away from the people. By changing this vast sum of cash into stock the express company can make a great bluff that it is paying only a fair rate on its stock. This will not deceive any one who knows the facts. There is no use cursing the express company. That concern has our money and will continue to absorb it until we obtain a fair parcels post. Give us the privilege of sending packages by mail at fair rates, and

that "melon" will grow down to normal size. No wonder these express companies are opposed to a parcels post.

I see by the papers that this thing is making a big stir all over our land. May God help us in our demand for a parcels post.

John Wanamaker said some time ago that there were a hundred reasons for a parcels post, and only six reasons against it; and these six reasons were—the six great express companies.

Temperance.

LIST OF STATE SUPERINTENDENTS OF THE ANTI-SALOON LEAGUE.

In accordance with my promise on page 988, last issue, I herewith give a list of anti-saloon superintendents of the United States and their headquarters. In a few cases affiliated societies are mentioned; otherwise, the Anti-saloon League is referred to

Alabama—Rev. Brooks Lawrence, Supt., Birmingham.
 Arkansas—Rev. E. A. Tabor, Sec. Inter-church Federation of Arkansas, Little Rock.
 California—Rev. E. S. Chapman, Supt., Los Angeles.
 Colorado—Rev. E. E. McLaughlin, Supt., Denver.
 Delaware—W. H. Anderson, Baltimore. (This State and Maryland are under one superintendency.)
 District of Columbia—Rev. Carl G. Dony, Washington.
 Connecticut—H. H. Spooner, Sec'y Conn. State Temp. Union, Kensington.
 Georgia—Rev. J. C. Solomon, Atlanta.
 Idaho—Rev. C. E. Helman, Caldwell.
 Illinois—Rev. J. K. Shields, 1534 1st Nat. Bank Bldg., Chicago.
 Indiana—Rev. U. G. Humphrey, 40 Claypole B., Indianapolis.
 Indian Territory—Rev. E. M. Sweet, Jr., Sec. Ind. Ter. Church Federation, 401 Iowa Bldg., Muskogee.
 Iowa—Rev. I. N. McCash, Supt., Des Moines.
 Kansas—Rev. R. Norris, Sec. Kan. State Temp. Un., Topeka.
 Kentucky—Rev. C. L. Collins, Supt., St. Todd B., Louisville.
 Louisiana—Rev. A. S. Smith, Supt., New Orleans.
 Maine—Rev. R. O. Everhart, Supt., Portland.
 Maryland—W. H. Anderson, Supt., 409 Am. Bldg., Baltimore.
 Massachusetts—Rev. S. H. Davis, Supt., 24 Milk St., Boston.
 Michigan—Rev. G. W. Morrow, Supt., Detroit.
 Minnesota—Rev. N. A. Palmer, Supt., Minneapolis.
 Mississippi—At present this State has no superintendent.
 Dr. Young, Dr. Baker's assistant, is there arranging to organize the State.
 Missouri—Rev. S. I. Lindsay, Supt., 710 Burl. Bldg., St. Louis.
 Montana—Rev. W. T. Groom, Supt., Butte.
 Nebraska—Rev. J. B. Carns, Supt., University Place.
 New Hampshire—Rev. J. H. Robbins, Supt., Concord.
 New Jersey—J. F. Burke, Supt., 135 Roosevelt Ave., Newark.
 New York—Rev. H. H. Russell, Supt., 109 E. 125, New York.
 New Mexico and Arizona—Rev. W. W. Havens, Supt., Albuquerque, New Mexico.
 North Carolina—J. W. Bailey, Manager, Raleigh.
 Ohio—W. B. Wheeler, Supt., 610 New Hayden E., Columbus.
 Oklahoma—Rev. J. J. Thomson, Supt., Oklahoma City.
 Pennsylvania—Rev. S. E. Nicholson, Supt., Harrisburg.
 Rhode Island—Rev. A. B. Cristy, Supt., Providence.
 South Dakota—Rev. W. M. Grafton, Supt., Mitchell.
 Tennessee—W. R. Hamilton, Supt., Nashville.
 Vermont—C. J. Ferguson, Supt., Burlington.
 Virginia—Rev. R. H. Bennett, Supt., Richmond.
 Washington—E. H. Cherrington, Supt., Seattle.
 West Virginia—Theodore Alvord, Supt., Parkersburg.
 Wisconsin—Rev. T. M. Hare, Supt., Milwaukee.

THE \$1000 TAX ON SALOONS, ETC.

Quite often it is thrown up against the Anti-saloon League that it did not turn in and help, or at least not with any vim or energy, when the tax was raised to \$1000 for each saloon; and we of the Anti-saloon League have, I believe, as a rule, owned up that the Anti-saloon League of Ohio and of the United States has never helped to further the principle of taxation for revenue. The *Wine and Spirit News*, of Columbus, Ohio, explains the matter to a dot, and, in fact, they are giving us some excellent "ammunition" in the way of suggestions in our crusade against the saloon. Read the following:

While we do not now, and never did, approve of such a thing as the \$1000 saloon tax, believing it to be outrageous, if not highway robbery, nevertheless it is a law, and probably will remain one. At the same time there never was a law enacted that did not have good features attached to it, so it is possible that it may have some. For instance, it cannot be denied that an immense revenue will accrue to the State, MAKING THE LIQUOR BUSINESS OF OHIO INDISPENSABLE TO THE STATE.

The matter in capitals in the above hit the point exactly. In other words, this revenue comes by robbing poor helpless women and children where there is a drunken father in the home. Dear friends, can we ever, while we have our senses, consent that the State of Ohio should receive its revenue by depriving its helpless children of necessary food and clothing, and by humiliating the mothers of these same children by obliging them to go half fed and half clad, taking in washing etc.? *God forbid*; and may God help us, each and all, to arise in our might and declare that this shameful thing shall go on no longer.

OVER FOUR MILLION LEAFLETS.

The Wholesale Liquor-sellers' Protective Bureau declare they have sent out during the past year 4,582,200 pieces of literature to counteract the work the temperance people are doing. Now, I do not feel very much worried about the "leaflets," but I am troubled when I see respectable home papers giving place to statements defending the general use of beer and other spirituous liquors. If they would append some signature telling who made the statement, or whose *opinion* it was, the public might accept it or not; but in many cases we are led to believe it is an editorial, and the opinion of the editor or publisher of the periodical. Look out for those who come to you in sheep's clothing, but who inwardly are devouring wolves.

THE WRIGHT BROTHERS' AIR-SHIP.

The latest thing we have heard from the Wright Brothers is the following, which I clip from the *Woman's National Daily*:

DAYTON, O., July 19.—The aeroplane built by Orville and Wilbur Wright is said to have been sold to the French government. The machine was intrusted to the Adams Express Company to-day for shipment to Paris via New York.

The above seems to indicate that they have sold their invention to France, and will at once make some flights as soon as the machine reaches its destination. With modern facilities the express company ought to deliver it in Paris so that we may soon have reports in regard to their success in teaching our friends across the water how to fly.

Later:—We clip the following from the Cincinnati *Enquirer*:

DAYTON, O., July 20.—According to information obtained to-day, Wilbur and Orville Wright, inventors and builders of the Wright flyer, the only aeroplane ever successfully tested in this neighborhood, have practically sold their machine to the French Government, and have received the first payment of the reported purchase price, 1,000,000 francs, equivalent to about \$200,000. Negotiations had been conducted on a basis of \$300,000; and that the sale has been effected at a handsome figure is a matter of great satisfaction to their friends.

WANTED.—By Oct. 1, one car extracted honey, California sage, water-white. Must be of heavy body, and first-class in every respect.

M. H. TWEED, 1125 Penn Ave., Pittsburg, Pa.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON, 4263 Virginia Av., St. Louis, Mo.

Honey and Wax For Sale.

FOR SALE.—20,000 lbs. light extracted honey, well ripened and of fine quality, in new 60-lb. cans. Sample, 10 cts. JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—75 cases of No. 1 white comb honey in 4x5 plain sections; 20-section no-drip cases, at \$3.60 per case on cars here—a very superior lot. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Extracted honey from clover and alfalfa, produced by the Emery Co. Bee-keepers' Ass'n. Car lots a specialty. Sample and prices free. PETER NIELSON, Sec., Huntington, Utah.

FOR SALE.—21 tons California sage honey; 12 tons water-white at 7 cts.; 9 tons light amber at 6½ cts. F. O. B. Piru, California; 10c for sample. E. F. McDONALD, Piru, Cal.

FOR SALE.—We have a small quantity of honey on the hive, curing, that will be extracted about August 1st. This left-on-the-hive-all-summer honey will be put in new 60-lb. cans, and will be the finest article that skill and pains can produce; of course, it costs more to produce this superior honey than the ordinary, and it is worth more. It is from white-clover and wild red raspberry. Ask for free sample. The price in any quantity is 10 cts. a pound f. o. b. shipping-point. E. D. TOWNSEND, Remus, Mich.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each. GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth \$1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hinston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN and CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, comb and extracted honey. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4428 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, \$1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for \$1.00; an extra select breeder for \$2.50. I have had 12 years' experience at queen-breeding. Address SAMUEL M. ANGEL, Route 1, Evansville, Ind.



If any of our subscribers can furnish copies of *GLEANINGS IN BEE CULTURE* for April 1, 1906; May 1, 1906; May 15, 1906; Jan. 1, 1907, or Mar. 15, 1907, please report to us by postal card, specifying which numbers you can supply.

In response to the request made in "Special Notices" a number of our subscribers have kindly offered to furnish us the A B C of Bee Culture now in their hands in exchange for *GLEANINGS*, or the new edition of the A B C. We are very grateful for these responses, but in many cases are unable to use them for the reason that we can not send them out on the orders we have unfilled unless the books are in absolutely new condition. Our notice was to bring the matter to the attention of local dealers who have new A B C books on hand, anywhere from one to a dozen copies, and it is from such that we desire to obtain what surplus copies there are in new condition.

HONEY PACKAGES AND LABELS.

We call attention to the honey-packages, both of glass and tin, on other pages of this number; also to the inside front cover page of the July 1st issue for labels. We are offering some new designs in labels. If interested in ordering, send for complete label catalog, of which a new edition has just been completed. If you have choice honey to sell, put it on the market in neat and attractive form, and it will find readier sale.

HONEY WANTED.

Those having honey to sell, of first quality, either comb or extracted, are requested to write us. If comb honey, give size of section, number in a case, grade, and quantity, and state the price at which you will sell. If extracted honey, tell how put up for shipment, quantity, and price, and mail a sample. We have little demand for off grades of either comb or extracted. We want to buy No. 1 and fancy white comb honey, plain sections preferred. We also want clover extracted honey. If you have any ready for market, or can get it ready soon, let us hear from you.

CARTONS FOR COMB HONEY.

In casing your fancy comb honey for market you will find it quite an advantage to enclose each section in a carton before placing them in the case. Sections packed in the Danzenbaker style of carton may be packed in the regular-sized shipping-cases; but the folding cartons which entirely enclose the section require more room, and consequently, larger cases to take them in. We are now prepared to supply cartons made from better grade of stock and more artistic printing than the ordinary style listed in our catalog. Samples and prices furnished to those interested, on application.

WATER-MOTORS FOR OPERATING HONEY-EXTRACTORS.

Our attention has recently been called to a washing-machine run by a water-motor. It is connected up to the city water pressure, and will operate on a pressure of 20 lbs. or more. A good many farmers with wind-mill and elevated tank can easily get a pressure in water-pipes of 20 pounds. It simply means having a head of at least 40 feet. Those located in hilly country with mountain streams can easily pipe the water so as to obtain the necessary pressure. We are planning to adapt this means of power to running honey-extractors so that those having the water power available may be able to use it. The amount of power which the motor will develop depends on the water pressure. The motor fitted to an extractor will not add more than \$15 or \$20 to the price, one-fourth to one-third the cost of a gasoline-engine, to those who have the water power piped and available. The water used amounts to about 100 gallons an hour; and

after going through the motor it may be utilized for lawn or other purposes where pressure is not required. Perfect control in starting and stopping is had by the turning of a common valve.

We have not got our fittings worked out yet, and it may be some weeks before we are ready, but we should like to hear from all of our readers who are interested and have water available to operate a rig of this kind. It is simplicity itself, and can not easily get out of order.

During the past two weeks we have received several letters of inquiry regarding a certain advertiser of bees and queens, whose name is well known to the readers of our advertising columns. These letters of inquiry came from our subscribers who have sent him orders and who were unable to hear from him as promptly as expected. We had no personal acquaintance with the advertiser, but from the first we felt sure the delay was due to the backward season and his consequent inability to raise the large number of queens as early in the season as he expected. We felt, too, that the unusual number of orders which he appeared to be getting put him at disadvantage on account of the large amount of correspondence so that he was unable to answer as promptly, as he would under usual circumstances, the letters of inquiry about his orders. Since these letters were referred to him we have full advices from him about the situation, to the effect that in the month of June alone he received more orders for bees and queens than he expected in the entire year. Furthermore, some of the people who complained about the delay to which they were subjected last year have sent him orders this year. By this time we think he will have either returned the money to those whose orders he can not fill or filled the orders entire. We do not want to defend any advertiser whose methods are not square with our subscribers, and on the other hand we want our subscribers to be as considerate of our advertisers as possible. Just imagine getting as many orders in a single month as the breeder expected in a whole year and you will understand some of the difficulties he has had in filling them and attending to the resultant correspondence.

Special Notices by A. I. Root.

WELLS AND CLEAR WATER; STERILIZATION OF SOILS IN THE GREENHOUSE; SEEDLESS TOMATOES, AND FIRELESS COOK-STOVES.

The above are some of the subjects treated in *Farmers' Bulletin No. 298*, issued June 19. It is an exceedingly valuable bulletin. It seems that seedless tomatoes, or at least those that are comparatively seedless, are soon to be within our reach; and if you haven't got a fireless cook-stove, especially for hot weather you are not keeping posted.

EMANCIPATION FROM THE THRALLDOM OF THE LIQUOR-TRAFFIC.

Mr. B. B. Jones, of Lake Roland, Md., sends us a clipping from the *Baltimore News* of July 20, containing a column of matter headed, "A prohibition law that will prohibit." Above this heading, in large capitals, we read, "Liquor men ready to leave Georgia. The new law will put them all out of business." In the same mail comes a newspaper clipping from Indiana, stating that the State Sunday-school convention just held decided, before its adjournment, that the slogan for that organization in the future would be, "Indiana a dry State." And these two illustrations are only examples of clippings that are coming in from north, south, east, and west. Surely that great address, the Stainless Flag, is bearing fruit. In fact, the indications have been all along that our nation was "getting ripe," all over for just such a "declaration of independence" from the rum power.

PAULOWNIA IMPERIALIS

This plant is now 4 ft. high, with leaves 2 ft. broad, and growing like a weed; and the most interesting thing about it is that the 15 or 20 suckers that have started at different times around the root of the tree, when put in the wet sand of my cutting-bed, have taken root, and promise to make nice little trees. The seed is exceedingly small, and slow in germinat-

ing. On this account, getting new plants by using the sprouts that start up around the root for cuttings will probably be the easiest and much the quickest way to propagate the tree—that is, if no failure occurs in getting them to start growing in the open ground.

Convention Notice.

In connection with the South Dakota State Fair, to be held at Huron, September 9–13, a liberal prize-list has been provided for apiarian exhibits by the management. Mr. R. A. Morgan, of Vermillion, who has the superintendency of the bee section, will doubtless do his best to give exhibitors a chance to show their productions to the best advantage. The bee industry needs all the publicity it can get, and bee-keepers ought certainly to take every opportunity like this to make their industry known and appreciated.

WEST MICHIGAN STATE FAIR.

There is one State fair that wishes to do the right thing by the bee-keeping industry, and that is West Michigan. The premium list reaches the very handsome total of \$236; and the prizes are so arranged as to be well worth striving for, as will be seen by the list annexed.

The bee-keepers of Michigan are expected to make this a grand show, and while they do this it forms an excellent advertisement for the bee industry as a whole. Of course, those who obtain prizes gain an advertisement which is more to them than the value of the premium.

The fair will be held in Grand Rapids, Sept. 9–13 inclusive. Competition open to Michigan only.

PREMIUM LIST; ENTRIES CLOSE AUG. 31 AT 6 P. M.

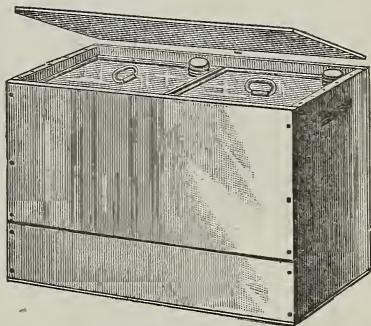
	1	2	3
1203 Display of comb honey; quality, quantity, and appearance and condition for market to be considered.....	\$25.00	\$15.00	\$10.00
1204 Specimen of comb honey, not less than 10 lbs., quality and condition for market to be considered.....	5.00	3.00	2.00
1205 Display of extracted honey; quality, quantity, appearance, and condition for market to be considered.....	25.00	15.00	10.00
1206 Specimen of extracted honey; quality, and condition for market to be considered.....	3.00	2.00	1.00
1207 Best display of extracted honey in granulated form.....	5.00	3.00	2.00
1208 Most attractive display of beeswax, the quality to be considered.....	5.00	3.00	2.00
1209 Most attractive display of best honey-producing plants, pressed, mounted, and named, not to exceed 25 varieties.....	5.00	3.00	2.00
1210 Italian bees and queen, single-frame nucleus in observatory hive.....	3.00	2.00	1.00
1211 Black bees and queens, single-frame nucleus in observatory hive.....	3.00	2.00	1.00
1212 Carniolan bees and queen, single-comb nucleus in observatory hive.....	3.00	2.00	1.00
1213 Caucasian bees and queen, single-comb nucleus in observatory hive.....	3.00	2.00	1.00
1214 Queen-rearing nucleus, showing frame of queen-cells in observatory hive.....	5.00	3.00	2.00
1215 Full colony in full-sized observatory hive, showing different parts and appliances of hive, most instructive.....	3.00	2.00	1.00
1216 Largest, best, and most instructive display of nuclei of different races of bees in single-comb observatory hive.....	5.00	3.00	2.00
1217 Largest, best, most interesting, attractive, and instructive exhibition in this department, all things to be considered	15.00	10.00	5.00

A. G. Woodman, of Grand Rapids, is superintendent of this department of the fair.

HONEY-PACKAGES IN TIN

This cut shows a box of two 60-lb. tin cans, which is the standard package for storing and shipping extracted honey. It is far superior to barrels, because there is not the same chance for leakage, or taint from the wood; and, being square they economize space. Owing to light honey crops, the last two years, the demand has been light, and we have a good stock bought below the prices ruling at present. To reduce this stock we will ship from Medina any orders mentioning this notice, at the following special prices: One box, two cans, 80 cts.; 10 boxes, \$7.50; 25 boxes or over, at 70 cts. a box. One box of one can, 50 cts.; 10 boxes, \$4.50; 25 boxes or more, at 42 cts. a box.

One-gallon square cans with 1½-inch cap, 100 in a crate, at \$10.35 per 100; 500 or over at \$9.00 per 100; packed 10 in a case at \$1.35 per case; 10 cases, \$12.50.

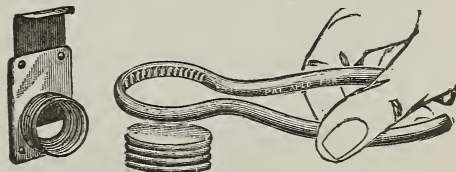


Sturwold's Show-case.



This case is 28 in. high, 20 in. square, outside measure, top and bottom. The glass of which it is made is 16×24. The case is to be set up in any grocery, drug-store, or any other place of business where you want your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, \$5, with name and address, \$5.50. As the glass is very apt to be broken in transit, we will ship them, if you prefer, with glass boxed separately, at same price. In flat no glass or finish, \$2.50; glass included, \$4.00.

Screw-cap Honey-gate and Can-screw Wrench.



Price 15 cts.; by mail, 18 cts. Price 10 cts.; 75 cts. per dozen. By mail, 4 cts. each extra.

We furnish the gate for 1½, 1%, or 1¼ screw. Other sizes made to order from caps you may furnish.

The wrench fits a 1¼ screw, and can be used on 1% or smaller by bushing between cap and wrench.

When you order these gates separate from cans we can not guarantee a fit unless you send us a cap from the screw with the order.

Sample Mailing-blocks.

Price, each, 6 cts.; by mail, 8 cts. These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

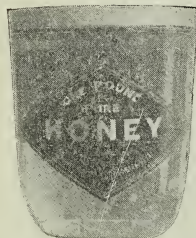
THE A. I. ROOT COMPANY,

:: ::

MEDINA, OHIO

Honey-Packages in Glass

We have quite a variety of glass packages for putting up honey for retail. We mention first our

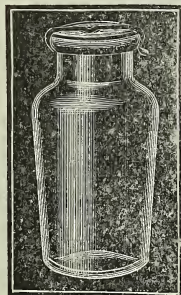
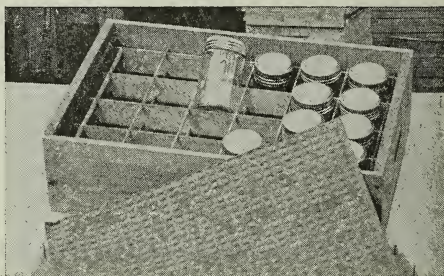


Half-pound Tumbler.

This is shown at the left with a diamond label, No. 95. These include tin cover with wax or parchment paper disk for sealing tight. No labels. Will hold 7 oz. of honey when filled; and the price, \$5.50 per barrel of 32 doz n; 5-bbl. lots at \$5.25. In reshipping-cases of 4 dozen packed ready to reship, when filled, \$1.00 per case; 6 cases, \$5.70; 20 cases or over, at 90 cents per case.

No. 25 Jar.

This holds one pound of honey; has an opal cap with rubber ring and lacquered tin screw rim which seals tight. Packed in reshipping-cases of 2 dozen each; price \$1.10 per case; 6 cases, \$6.30; 20 cases or more at \$1.00 per case.

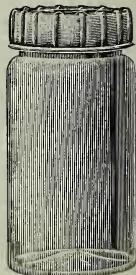


Tiptop Jar.

We keep these in two sizes, for half and one pound of honey. The shape of the jar is shown in the cut. It has a glass top, a rubber ring, and a spring-top fastener. Packed a gross in a crate at \$5.00 per gross for 1-lb., or \$4.50 for the half-pound size. We have them also packed in reshipping-cases of 2 dozen each at \$1.10 per case for 1-lb. size; 6 cases, \$5.80; 20 cases or over at \$1.00 per case. Half-pound size, \$1.00 per case; \$5.70 for 6 cases, or 90 cts. per case in 20-case lots.

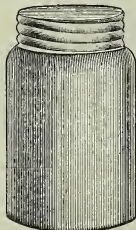
Simplex Jar.

This is one of the handsomest jars we ever handled. The factory making them was wrecked last August, and we have been unable since to secure any more of the size, which holds one pound. We can supply the next larger size, which holds 18 oz. of honey. Packed in reshipping-cases of 2 dozen. Price \$1.15 per case; 6 cases for \$6.60; in 20-case lots or over at \$1.05 per case. We still have at Philadelphia a few cases of the 1-pound size which may be had from there while they last, at the same price as above.



Sq. Hershisier Jar.

Jars.



These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. They are made in four sizes square

and three sizes round. The 1-lb. size in each style is shown in the first two cuts at the left.

1-lb. square Hershisier jars, doz., 50c;	\$5.40 per gross
1-lb. " " " " " "	55c; 6.00 " "
1-lb. " " " " " "	80c; 9.00 " "
2-lb. " " " " " "	1.00; 10.80 " "
1-lb. round " " " " " "	60c; 6.60 " "
1-lb. " " " " " "	75c; 8.40 " "
2-lb. " " " " " "	1.10; 12.00 " "

The ordinary square jar to seal with cork, similar to that shown in cut at extreme left, is very largely used for honey. They are made in four sizes. The 1 and 2 lb. sizes are packed $\frac{1}{2}$ gross in a package; the smaller sizes one gross. Price including corks:

5-oz. square jar35c	per dozen;	\$3.25 per gross
8-oz. " "45c	" "	4.25 " "
1-lb. " "60c	" "	5.75 " "
2-lb. " "75c	" "	7.50 " "

THE A. I. ROOT COMPANY, MEDINA, OHIO